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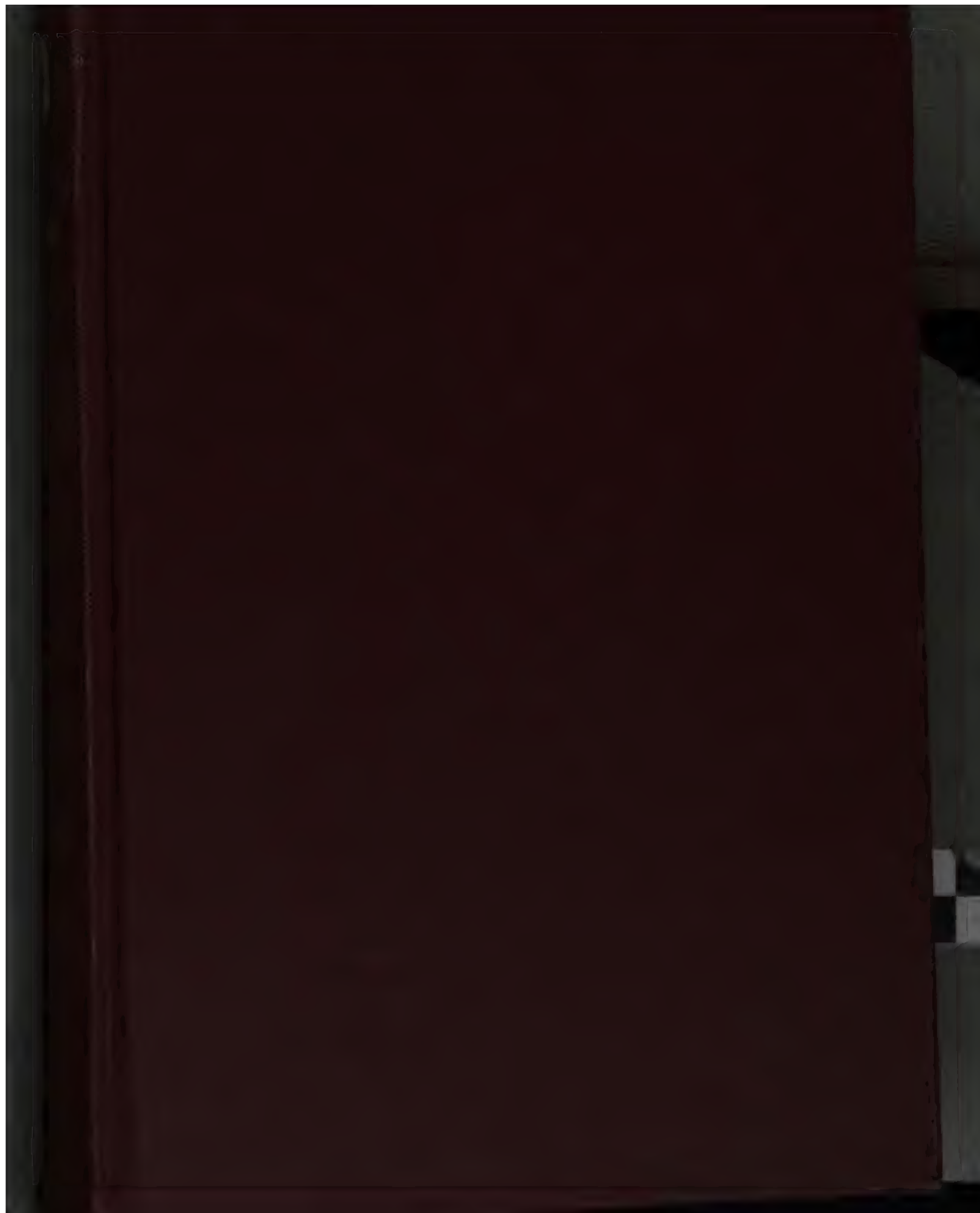
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IN THREE VOLUMES.

“2”

VOL. II.

SECTION III.—MANUFACTURES, CLASSES 11 TO 29.

SECTION IV.—FINE ARTS, CLASS 30.

COLONIES.

LONDON:

SPICER BROTHERS, WHOLESALE STATIONERS; W. CLOWES AND SONS, PRINTERS;

CONTRACTORS TO THE ROYAL COMMISSION,

29 NEW BRIDGE STREET, BLACKFRIARS, AND AT THE EXHIBITION BUILDING.

MDCCLII.

1851

Econ 5958.51.4

1872, June 24.
Gift of
William Everett,
Tutor in Harv. Univ.
(H. U. 1859.)

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PRINTERS TO THE ROYAL COMMISSION,
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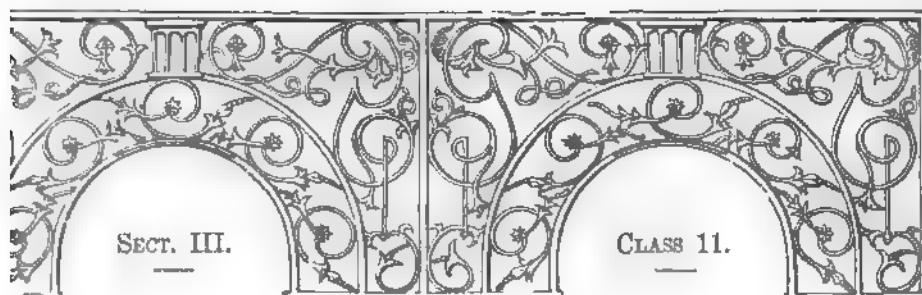
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COTTON.

INTRODUCTION.

nd third Section of the Exhibition is introduced by this Class, which includes the Manufacture of his Section contemplates those results of human industry which naturally succeed to the Sections of als and Machinery. The substance to be operated upon having been considered, together with the assistance necessary to carry forward the processes through which it has to pass in its progress w material to the manufactured article, it now becomes an interesting study to turn attention to of the industry occupied in the preceding departments. While objects in the first Section may be in a passive or preparatory state, objects in the second must be considered in an active, and in the complete condition, awaiting only their application to the purposes of life. This condition generally articles contained within this Section less attractive than in the preceding and succeeding Sections. wed, however, objects in this Section must receive a degree of attentive consideration not inferior to ed on the former. The manufactured article may and should be regarded as the test of the per- of the raw material constituting its foundation, and, secondly, of the mechanical arrangements in its production. If the raw material has been wanting in any of the properties for which it is the preparation, or if the manufacturing machinery has been defective in operation, the manu- icle offers, in many cases, certain evidence of these facts. And, conversely, the purity and perfect e material, with a state of efficiency in the manufacturing machinery, combine to produce a certain in the manufacture which may be generally ascertained upon its careful examination.

et of the Class more immediately under notice, the Cotton Manufacture, receives, from its vast im- first position among manufactured articles. It comprises—A. Cotton, Yarn, and Thread; B. Calicoes, ecimens, Long-cloths, Shirtings, &c.; C. Cords and Beaverteens; D. Muslins, as Cambrie and igned, Striped, &c.; Shawls, Handkerchiefs, &c.; E. Dainties for Furniture, Quilting, &c.; F. oven Cotton, Handkerchiefs, Gingham, &c.; G. Oiled Calicoes, &c.

ber of Exhibitors in this Class is not large, and their productions will be found grouped together in from 1 to 8, at the North-western end of the Building, on the Ground Floor, near the Nave.

methods of manufacture are illustrated which must receive the notice of those concerned in this department of commercial activity. The fitness of some articles, also, for the peculiar markets for are specially prepared suggests, even to the casual observer, interesting reflections on the different editions of those for whom these articles are manufactured. There are several new applications of xile purposes. The most instructive parts of this collection, to those who have no technical interest ose which contain arranged specimens in illustration of the stages of manufacture. The manu- bread is thus represented from the raw cotton to its completed condition. A case has also been rraned which contains illustrations of the progress of the manufacture of cotton from the raw the finished results in the coarse and fine departments of the trade. One of the wonderful objects a this Class is a specimen of muslin made from No. 5,408 cotton-yarn, believed to be the finest ever at machinery could be brought to the degree of delicate movement, and precise and accurate adapt- e slender materials of which this muslin is composed, may well be considered a great industrial

ry of the cotton manufacture in Great Britain presents several facts of the most wonderful descrip- dier manufacture represents this country in a position so important and influential, and in none artment of industry attained, within the same interval of time, proportions so vast and relations so The cotton manufacture may be justly regarded as an evidence of the mechanical capabilities of . . . A little before the commencement of the present century it was in its infancy. One by one the ural difficulties attendant upon its preservation were resolved. The spinning-frame was suggested out, spinning by rollers was twice abandoned, and then successfully accomplished; the first mulo an attic, the first spinning-jenny in a cottage. Hargreaves and Crompton were poor weavers; was a barber's apprentice. The beginning of this stupendous manufacture was truly insignificant, ts wonderfully with its present position.

with statistics form data by which this manufacture in its present state may be duly estimated:— annual imports have been estimated at about 550,000,000 lbs. weight, exclusive of deductions for f this quantity 500,000,000 lbs. are employed in manufacture, the annual value of the raw material ed being about ten millions sterling. About thirteen millions sterling are annually paid away in

machinery, &c., for the manufacture of this material, and about the same amount in wages to the persons directly employed in the factories, of whom the total number is taken at upwards of half a million, exclusive of 80,000 or 90,000 engineers and machinists immediately connected with the manufacture. The total annual value of the manufactured material has been approximatively represented at about thirty-six millions sterling. The effect on the population of the manufacturing districts has not been less surprising.

Although, therefore, little of external interest appears to belong to a bundle of cotton-yarn or a piece of calico, the study of its manufacture, exclusive of the exquisite mechanism by which it is operated upon, and the statistical facts which link themselves with its history, can never be unprofitable. The moral considerations connected with cotton factories form a subject of even higher interest and importance.—R. E.

1 JACKSON, JOHN, 73 *Adam Square, Edinburgh*—
Weaver and Producer.

1. Fine wool shawl, wove on the Spolino or loop principle, to show that this mode of weaving is applicable for figured wool shawls of the finest description.
2. Fine wool long shawl.
3. Edinburgh-made woven shawl.

2 SANDEMAN, HECTOR, *Tulloch Bleachfield, Perth*—
Manufacturer.

Cotton and lawn printed handkerchiefs; showing an improved red colour, obtained from the stalks of the *Rubia munjitha*, commonly called East Indian munjeet. One large bed-coverlet, in which the colours of black, red, and chocolate are dyed with munjeet.

[The *Rubia cordifolia*, also called *Rubia munjitha*, and by the natives of India mungeeth, is a species of madder, furnishing a fine dye, much used in the hill districts of India.—E. F.]

3 WALKER, JAMES & ROBERT, *Earlstown, Melrose*—
Manufacturers.

Cotton ginghams for female dresses, of fast colours; hand-loom wrought; yard wide.

4 PULLAR, ROBERT, & SONS, *Perth*—Manufacturers.

Umbrella and fancy ginghams; handkerchiefs; and woollen Derries.

5 AULD, BERRIE, & MATHIESON, *Glasgow*—
Manufacturers.

Book muslins, several pieces, each 12 yards long, 39 inches wide.

Several pieces of mull muslin; jaconet muslin; bishop lawn muslin, all of the same dimensions.

Saccharilla book muslin, several pieces, each 16 yards long, 45 inches wide.

Tarlatan book muslin, several pieces, each 16 yards long, 53 inches wide.

Saccharilla mull muslin, three pieces, each 20 yards long, 45 inches wide.

Harness book muslin, 8 yards long, 40 inches wide. Harness book muslin curtain, 56 inches wide, 3½ yards long; 80 inches by 4 yards long, and 80 inches by 4 yards long.

Leno book muslin, samples of 27 inches wide 12 yards long. Harness book muslin curtains.

6 M'BRIDE & Co., *Glasgow*—Inventors and
Manufacturers.

Cotton table-cloths. Bird's-eye diaper and huckaback towelling. Furniture and jean stripes. Ginghams, clan tartans, and cotton galas, and Hungarians and Derries, all made by patent power-loom.

Specimens of table-cloths and tartans, made by the same loom, the web being from hemp, as prepared by Mr. Elijah Stock, of Renfrew, Scotland, for improving hemp, as a substitute for cotton.

7 ANDERSON, JAMES & ALEXANDER, *Glasgow*—
Manufacturers.

Ginghams, checked and striped. Cravats, checked muslin. Handkerchiefs, Turkey-red ground. Tartan muffler. Saxones.

8 FINLAYSON, F., & Co., 25 *Dundas Street, Glasgow*—
Manufacturers.

Coloured sprig and striped lappet muslins; white and coloured striped; coloured spot; coloured satin striped tarlatan; white sprig striped and spot lappet; coloured gauze striped.

Lappet flounced muslin dresses.

9 LETHEM, BLYTH, & LETHEM, *Friday Street, London*;
49 *Virginia Street, Glasgow*; and *Academy Street, Belfast*—Manufacturers.

Specimens of different fabrics of plain muslins, woven from the same quality of yarn. Tamboured muslins for various articles of dress. Ginghams for dresses.

10 & 45 OSWALD, STEVENSON, & Co., *Glasgow and Manchester*—Merchants.

Cotton yarns, of various colours, dyed in the west of Scotland, in bundles for export.

Cotton yarns, of various qualities and fineness, spun in the west of Scotland, in bundles for export, arranged according to Manchester classification.

Water twist. Mule twist. Fine yarns.

11 PATERSON, JAMIESON, & Co., 58 *Dundas Street, Glasgow*—Manufacturers.

Ginghams and handkerchiefs of various styles and qualities; fabric all cotton, hand-woven, or printed.

12 YOUNG, J. H., & Co., *Glasgow*—Manufacturers.

Fabrics suited for East India markets, consisting of bird-eye crape, plain and fancy net, book and mull muslins, Saccharilla mull, fine Swiss lappets, white and coloured.

Fabrics suited for home, American, and continental markets:—Piquet leno, blue; plain amber; checked pink; and striped green. Book muslin and Scotch lawn cambric handkerchiefs. Victoria, bishop, and Nainsook lawns. Jaconets. Swiss mulls. India mulls. India book muslins; Swiss book muslins. Tarlatan. Scotch elastic mull. Starched mull. India ledger. Checked book; striped book; tamboured book; tamboured jaconet. Lappet spot. White and pink spot, lappet stripe. Loom-sewed spot, white and sprig, coloured; dress made up of the same, with flounces. Paper harness sprig. Lappet sprig, stripe, and colonnade curtains. Harness leno; sprig and bordered book; and others.

13 HENRY & SONS, 81 *Buchanan Street, Glasgow*,
and 120 *Cheapside*—Manufacturers.

Embroidered merino dresses. White tambour muslin dresses. Sprigged evening dresses, embroidered in the loom. Specimens of plain linen ginghams; all exhibited for quality and price.

In the embroidered merino dress marked A, there is only one repeat of the pattern from the bottom to the top of the skirt.

14 SYMINGTON, ROBERT B., & Co., *Glasgow*—
Manufacturers.

Harness book muslin and harness leno muslin window-curtains, all woven in the Jacquard loom. The design is called the "Humboldt pattern," composed of tropical plants and flowers.

SON, JAMES, & SON, Glasgow—Manufacturers.
woven handkerchiefs in imitation of Indian
iefa.

SON, JOHN & DAVID, Glasgow—Manufacturers.
ms of checked cotton gingham, and checked
vats, in various qualities and styles.

SDON, WILLIAM & JAMES, & Co., Glasgow—
Manufacturers.
illa book-muslin. Scotch tarlatan muslin. Tam-
ok-muslin.

HENRY, & SON, 62 Queen Street, Glasgow—
Manufacturers.
iens of various gingham, hand-loom woven.

N, PETER, & SONS, Carlisle—Manufacturers.
d dyed yarns. Cotton checks and gingham.
dkerchiefs. Cotton shawls. Scarfs and robes.
"Stripes and "crossovers." Dyed "selam-
randvilles. Denims. Twilled stripes. "Pa-
ta."—For home consumption and exportation.

JIBBON, EDWARD, Carlisle—Manufacturer.
ginghams, of six qualities, made principally
merican trade.

EARSON & Co., Carlisle—Manufacturers.
stripes, and striped and checked fancy ging-
Hungarians.

THIAN & PARKER, Carlisle—Manufacturers.
s of gingham, checks, stripes, poplins, &c., for
foreign, and colonial markets.
of dyed yarn.

OK, JONAS, & BROTHERS, Meltham Mills,
Huddersfield—Manufacturers.
ns of raw cotton; carded cotton; different
of rovings; throstle yarns on bobbins (patent
le yarns in cop and hank; sewing threads in
and bleached, of various numbers in 2, 3, 4,
ord. Thread and crochet cotton wound on

THORN, JONATHAN WHITE, Nottingham and
at Mills, Barton-on-Trent—Manufacturer.
of sewing, knitting, and mending cotton.
read, white, and coloured, as used by glove and
manufacturers.
read and doubled yarns, as used for making
ig Nottingham lace.
l cotton, white and coloured, as used by silk and
nufacturers.

SH & WINDLEY, Nottingham—Manufacturers.
ns of thrown silk, used in the manufacture of
ry, and gloves. The produce of India, Italy,

ACKERAY, JOHN, & SONS, Nottingham—
Manufacturers.
nd white cotton gassed laced thread. Cotton
dressed cotton threads, in colours. Double-
ingle cotton thread. Selvage threads. Warp-
eal, gassed and ungassed; and other varieties.

EENHALGH, RICHARD, & SONS, Mansfield—
Manufacturers.
of doubled cotton yarns, as used in the manu-
various descriptions of lace, gloves, hosiery,
aths, and for sewing and knitting.

s, W. S., Leicester—Patentee and Manufacturer.
hibiting specimens of sewing cotton, and patent
ructed to prevent imposition as regards the
otton upon each.

30 RAWORTH & COMPANY, Leicester—Manufacturers.
Samples of six-cord and other sewing cotton.

31 O'CONNELL, JOHN, 27 South Main Street, Cork—
Manufacturer.
Specimens of linen and cotton gingham.

32 CLARKE, J. P., King Street Mill, Leicester—
Manufacturer.
Patent embossed wood, metallic and other reels, con-
taining various lengths of two, three, six, and nine-cord
sewing cotton. Reels also shown in their different stages
of manufacture, from the rough hazel wood and metal to
the highly-finished reels.

33 EVANS, WALTER, & Co., Darley Abbey, Derby—
Manufacturers.
Sewing cotton of various kinds, made up in different
forms for use.

34 RATCLIFF, Mrs., Wultham Abbey—Producer.
White knitted counterpanes.

35 BARLOW, GOODY, & JONES, Bolton—Manufacturers.
Pieces of figured quilting vesting; white quilting bed-
cover, commonly called toilet quilts; coloured quilting
bed-cover; and white welted bed-cover, welted quilts.

36 HOLLINS, W., & Co., Pleasley Works, near Mansfield,
Nottingham—Manufacturers.
Merino, Cashmere, and cotton hosiery yarn. The sin-
gle and two-threads are used in the midland counties in
the manufacture of hosiery, and the three-threads are
generally bought for the Continent for knittings, and
applied to hosiery purposes there.

37 MARTIN, WILLIAM, & SON, Bolton—Manufacturers.
Damask diced and plain furniture dimity, for bed-
hangings, curtains, &c.

38 COOK, W. W. & J., Little Bolton—Manufacturers.
Cut brocade mull, flounced dress, white, for ladies.
Plaited brocade quilting skirts, white. Plaited brocade
skirts, white.
Welted brocade skirts, white. Brocade stripe. Cut
brocade mull, in the piece, white.

39 MYERSCOUGH, STEEL, & Co., Bolton—Manufacturers.
Counterpane—bed-cover. Quilting bed-cover, com-
monly called toilet-quilt. Fine diamond quilting, for
waistcoats.

40 BARNES, THOMAS, Farnworth Cotton Mills, Bolton—
Manufacturer.
White Polynesian swansdown, combining fineness of
back with considerable thickness of substance.
Piece of moleskin in different stages, illustrating the
progressive method of raising, dyeing, printing, and
finishing a substitute for low woollen cloths.
Piece of printed moleskin, pattern designed and regis-
tered by the exhibitor; printed by John Jackson & Co.,
Manchester, and finished by John Whitehead's (of Elton)
patent process of raising and finishing after dyeing and
printing.

41 CROSS, J., Bolton—Manufacturer.
Twilled long-cloth and shirting.

42 SUDWORTH, JOSIAH, Bolton—Manufacturer.
Counterpane, exhibited for weaving.

43 WATERS, J. & Co., Fountain Street, Manchester—
Manufacturers.
Small wares, knitting and reel cotton, ribbon wire,
webbing, tapes, fringes, cotton-laces, bindings, &c.

44 CHRISTY & SONS, Fairfield Mills, near Manchester—
Manufacturers.
Royal Turkish bath-towels.
The novelty consists in the absorbing power of the

surface, having a plush or looped surface on both sides, and in the patent mode by which this is accomplished on one or both sides. The great softness of the cotton surface adapts it peculiarly for young children. The advantages of cotton towelling have been long appreciated in the Eastern baths. The linen nap or plush affords equal absorbency, and produces a sharper feeling to the skin, whilst the retaining of the cotton ground gives a pliancy of material which has long been a desideratum in towelling with a sharp rough surface. Produced by "Holt's Patent." The texture is applicable to shawls, counterpanes, and other articles.

46 WALKER, WILLIAM, 13 *Marsden's Square*,
Manchester—Manufacturer.

Cotton cloth, with specimens in imitation of woollen broad cloth, beavers, Witneys, &c.

47 CROSS, C., & Co., *Corporation Street*, *Manchester*—
Manufacturers and Joint Patentees.

Very wide doeskins, plushed on one side, and on both sides; lambskin; shoe linings; white twill; dyed cord; striped everlasting.

Specimens of various articles of wearing apparel, without seams, produced by the exhibitors' patent machinery.

48 JOHNSON, JABEZ, 44 *Spring Gardens*, *Manchester*—
Manufacturer.

White and coloured figured wove quilting for vests.
White diamond quilting for vests.
White and coloured bed-covers.
White and coloured toilette covers.

49 MAJOR & GILL, 49 *Cannon Street*, *Manchester*—
Manufacturers.

Patent double coutils and nankeen for stays, consisting of two cloths woven together, and stitched, during the process of weaving, at any interval of space required for the various patterns of stays.

50 GLOVER & DUNN, *Manchester*—Manufacturers.

Calicoes, &c., with examples of cotton in various stages of manufacture. India jaconets. Cambric of various qualities.

Fine power-loom shirtings, finished in imitation of linen, having 140 by 160 threads in the square inch.

51 WALMSLEY, HENRY, *Fir Mills*, *Failsforth*, near
Manchester—Importer.

Table-cloth manufactured by power. Materials—1st, silk, in colours; 2nd, silk and worsted, in colours; 3rd, cotton and worsted, in colours; 4th, cotton only, in colours. In the centre is a view of the "Exhibition Building," 80 inches wide, 110 long, from the official design by Paxton, with emblematic borders representing Peace and Commerce with the nations; and a procession displaying the costumes of Europe, Asia, Africa, and America, *en route* to the Exhibition.

Specimens of figured weaving by power, in different fabrics.

Woven picture, in silk and in cotton, of the "Exhibition Building," with emblematic borders; imitation of engraving.

Goose's patent Jacquard machine for producing table-cloths.

52 SPENCER, JOHN, & SON, *Marriott's Court*, *Manchester*
—Designers and Manufacturers.

Cotton, white woven, figured summer bed-quilt, quilted in the loom.

Cotton, coloured woven, figured bed-quilt.

Cotton, coloured woven, figured Dresden bed-quilt, quilted in the loom.

Cotton, figured quilting hangings, for beds or windows; a new application of the fabric to this use.

Quilting waistcoatings: white quilting figured waistcoat; and coloured woven quilting waistcoat—figured in the loom.

53 BAZLEY, THOMAS, *Manchester*—Manufacturer.

Case, containing illustrations of the transition progress of the manufacture of cotton, from the raw material to the finished results, in the coarse and fine departments of the trade.

[No. 1 in the case is a sample of New Orleans cotton; No. 2, blown or cleaned cotton; No. 3, first carded; No. 4, second carded; No. 5, drawing roving; Nos. 6, 7, and 8, rovings; Nos. 9, 10, 11, and 12, cops and hanks, mule yarns, No. 1 to 60; Nos. 13 and 14, throstle-yarn, Nos. 10 and 30; Nos. 15 and 16, shuttle cop-mule yarn, Nos. 30 and 120; Nos. 17 and 18, hosiery yarn, Nos. 5 and 50; Nos. 19 and 20, threefold sewing-thread, Nos. 20 and 40; Nos. 21 and 22, white and printed calico; Nos. 23 and 24, white and printed fustian; No. 25, Sea Island cotton; No. 26, blown or cleaned cotton; No. 27, first carded; No. 28, second carded; No. 29, drawing roving; Nos. 30 to 34, rovings; Nos. 35 to 37, mule-yarn, in cops and hanks, Nos. 200, 400, and 600; No. 38, crape-yarn, No. 100; No. 39, lace thread, two-fold, No. 200; No. 40, sewing-thread, three-cord, No. 200; No. 41, sewing-thread, six-cord, No. 400; No. 42, sewing-thread, nine cord, No. 600; Nos. 43 to 45, white, printed, and figured Scotch muslin; No. 46, 47, and 48, white, printed, and figured lace.]

54 HOULDSWORTH, THOS., & Co., *Little Lever Street*,
Manchester—Cotton Spinners.

Specimens of fine cotton yarn, and of doubled yarn, or fine cotton lace thread, arranged in segmental compartments.

Specimens of the same Nos. of yarn, and of thread, in hanks.

55 JOHNSON, ROBERT, & NEPHEW, 95 *Watling Street*—
Importers.

Book-muslin for curtains, figured in the Jacquard loom; the same, new design, palm and plantain tree alternate.

Leno muslin, figured.

Swiss manufacture, for curtains, embroidered on book-muslin; the same, on British net.

Infant's long robes, and girl's frock, embroidered.

56 BRADBURY, GREATORREX, & BEALL, 6 *Aldermanbury*
—Proprietors.

Specimens of window curtains.

57 LINCOLN & BENNETT, 2 *Sackville Street*, *Piccadilly*, and
58 *Union St.*, *Borough*—Inventors and Manufacturers.

Hats with calico foundation. Drab hats for India, &c. Chess-table, &c., made of prepared calico, turned, carved, japanned, &c., in imitation of grained wood.

58 ROGERS, LOWREY, HOLYLAND, & Co., 91 *Watling*
Street—Proprietors.

Muslins manufactured in Scotland, denominated "Books," Swiss, Tartan, Nainsook, Mull, and Scotch cambric.

59 MAIR, SON, & Co., 60 *Friday Street*, *London*, and 163
Ingram Street, *Glasgow*.

Patent muslin window curtains, figured in the loom. The pattern and execution are obtained at reduced cost by a new arrangement of the Jacquard loom.

Leno window curtain.

Samples of muslin dresses, figured in the loom.

Specimen of the finest plain muslin, manufactured from No. 5408 cotton yarn, spun by T. Houldsworth, Manchester. Bleached by John Wallace and Co.

Scotch needle and tambour work, including embroidered merino and muslin dresses.

Printed flannels, twilled bandannas, and cambric handkerchiefs.

60 HORROCKSES, MILLER, & Co., 9 *Bread Street*
—Manufacturers.

Long cloths and twilled shirtings.

- 1 **CROCKER, J. & A., 51 Friday Street**—Producers.
Harness woven muslins, for curtains.
Complete drapery, blind and curtains of harness woven muslin, showing its adaptation for window decoration.
Printed cotton, for furniture uses; the colours produced by machine, and by machine and blocks.
- 2 **OWTRAM & Co., 13 Watling Street**—Manufacturers.
Brocaded cottons and cotton damasks. Satin brocades and flush sprigged muslins.

- 63 **MARSLAND, SON, & Co., Bridge Mill, Blackfriars, Manchester**—Manufacturers.
Crochet and sewing cotton.
- 64 **DAILY & Co., 9 St. James's Place, Hampstead Road**—Producers.
Specimens of soiled and faded satins, dyed and embossed.
- 65 **ALLEN, R., Sackville Street, Dublin**—Producer.
Free labour cotton goods.

[The cotton manufacture forming an important feature in the commercial activity of this country, it may not be interesting to take a rapid glance at its history and products. It is worthy of remark, that the name "Cotton," is almost the same as "Cotnot," that which is given a Hebrew to the first clothing which was put upon man; and there is reason to believe, that this fabric was employed for that purpose in the East, at a very remote period. The "fine linen" of Egypt is extremely ancient; but the "fine cotton" of India rivals it in antiquity, beauty, and utility. The microscopic examination of the structures of these fabrics, recently made in order to determine the nature of mummy-cloth (which is unquestionably linen), has proved that they are essentially different in form; the fibres of linen being cylindrical and tapering at each end, and the fibres of cotton being fat and ribbon-like.

The Hindoos, from whom we derive the knowledge of its manufacture, have not only made cotton cloth from time immemorial, but have excelled all other nations even to this day, in the delicacy of their fabrics. Herodotus mentions it as the common clothing in India; and it is spoken of by Arrian and Strabo as well known. Cottons were articles of trade and of dress in Russia in 1252; and were generally used by the Chinese in 1316. Cotton cloth was brought to London in 1590, from Benin; and it was ascertained about a century previous, to have been the chief article of dress among the Mexicans. Its manufacture was originally brought to Europe by the Moors of Spain; but it was not till after the establishment of their commerce with India, that the Dutch began to fabricate cotton cloths at home. The Protestants, driven by persecution from the Netherlands, brought this manufacture to England in the reign of Queen Elizabeth.

Our ordinary cotton fabrics have their counterpart in the original manufactures of India; and the native muslins of Dacca in Bengal still rival the productions of the exquisite machinery of England. The former have obtained their superiority from the skill acquired by manual dexterity transmitted through a long lapse of ages; the latter, from that of little more than half a century of well-exercised mechanical ingenuity. The various kinds of cotton fabrics brought from India, were originally distinguished by the names of the places where they were made; as, jaconets, mullmuls, betelles, tarlatans, tanjees, bukes, terridams, doreas, &c. Imitations of these by our manufacturers retain their names; and additions and changes are made according to the improvements introduced.

The two great emporiums of the cotton manufacture are Manchester and Glasgow; the former having Bolton for its assistant, in the production of muslins and the finer sort of goods; and the latter, Paisley. Both these cities have risen, in consequence of the wealth produced by their manufactures, from the position of third-rate towns, and known only by historical associations, to the

rank of being second in the kingdom, and honourable rivals in magnitude and importance. The pattern-cards of Manchester goods which have been sent over to the Continent by some eminent manufacturers, have at times exhibited specimens of 1,500 different kinds of cotton manufacture, varying in fabric and design, from the coarsest cloth to the finest muslins; and in colours, from the richest chintz to the plainest goods. The term "Manchester and Glasgow Warehouse," exhibited on a sign-board in London and other towns in this country, indicates that all kinds of cotton goods are to be obtained of the exhibitors.

The general name of calico has been applied to the plain white cloth manufactured from cotton, from the circumstance of this article having been first imported from Calicut, in 1631, the place of its original and principal manufacture. As calico increases in its quality and strength, it is called long-cloth, duck, and double warp. Calico-shirting or twine-cloth is made to imitate and supersede linen; and in patent-twist, the yarn is more closely entwined than in common calico. Sheet-ing-calico, as its name implies, is a substitute for linen-sheeting, and is preferable on account of its cheapness and warmth. Printed calicoes, or prints, at first the imitations of those of India, are now produced in patterns of an indefinite variety every year. Calicoes are frequently impregnated with a made paste of spoiled flour called "the dressing," which renders it difficult to ascertain their quality. This dressing is given merely to improve their appearance.

The peculiar style of printed calico, called chintz, originally from India, and in which the figures are at least of five different colours, impressed upon a white or coloured ground, are now made by our own manufacturers with great success, as to beauty of design and richness of colour. The invention and the drawing of patterns for printing alone gives employment to artists of a peculiar class; and the variety produced is immense, in order to satisfy the perpetual demand for change produced by fashion.

It is to the production of fine muslins, that the chief efforts of our cotton manufacturers have been directed, with a view to excel the wonderfully delicate and light fabrics of India. It is stated that the turbans of some of the rich Mohammedans at Delhi were made of muslin so fine that thirty ells did not weigh four ounces; and that some of their broad webs might be drawn through a ring of moderate size, the tissue being so exquisite that it seemed more like the work of insects than of men, resembling in the language of Eastern hyperbole, "the woven wind." The threads of a specimen of this manufacture in the Museum of the East India Company, when examined with the microscope, were found though spun only by the distaff and spindle, to surpass our machine-made muslin in fineness, but to be inferior in regularity. Twenty yards of the yarn of which this muslin was made weighed only a grain; and a pound of it would have

reached the length of 115 miles. In England yarn has been spun so fine, that a pound would extend to 167 miles in length; but this could not be woven by our machinery. The price of the Dacca muslin has been, when brought to this country, from 10 to 12 guineas per yard. By the employment of machinery, and the division of labour, we are enabled to produce muslin much cheaper than the Hindoos, and even of finer texture; but their muslin is richer, softer, and more durable, and still maintains its reputation. The same may be said of their calicoes, ginghams, and chintzes, which form the staple commodity of the Circars. Though nearly driven out of the European markets by cheap and successful imitations, they are still preferred in the East, where the merchants consider that they are able to distinguish by the touch, and even by the smell, the genuine productions of the Indian loom.

Varieties of muslin are jaconet, a light kind of muslin, open and soft, but stouter than the mull: the name is supposed to be a corruption of Jaghernout, the place where they were made; it is used for dresses, neckcloths, &c. Nainsook is a thicker sort of jaconet, plain and striped. Mull muslin is a very thin and soft kind, used for dresses, trimmings, &c. Seerhand is between nainsook and mull, and particularly adapted for dresses, retaining its clearness after washing. Buke muslin is a plain clear kind, woven for working in the tambour. Foundation muslin is open-worked, used for stiffening dresses and bonnets. Leno is thinner and clearer than buke muslin; a sort of cotton gauze, used for window blinds. Cambric muslin is an imitation of cambric, a linen fabric; it is sometimes glazed, white and coloured for linings, and twilled, figured, striped, or corded. Cord and fancy checks, are cambric muslins with stripes and cords placed chequer-wise, by thick threads being introduced into the warp or weft. Figured muslins are wrought in the loom to imitate the tamboured muslins, which are embroidered by hand on the tambour. Glasgow is the chief seat of the tamboured muslins. Of cotton cambric there are two kinds; that used for dresses, white or printed, made chiefly in Lancashire; and that used for the same purposes as French cambric, made chiefly in Glasgow.

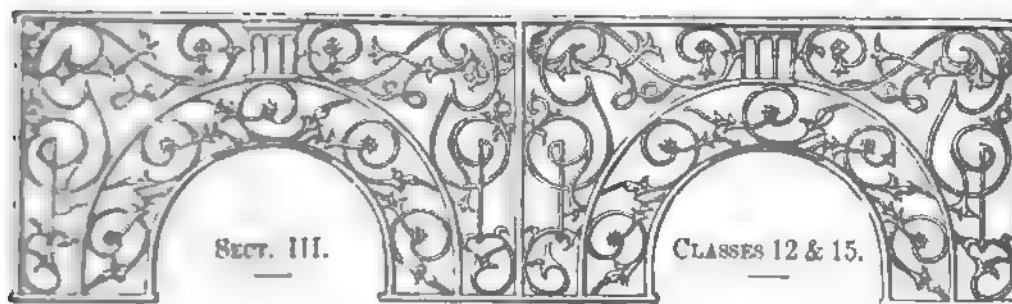
Cotton damasks, huckabacks, and diapers, are made in imitation of articles of the same name in linen; they are cheaper, but less durable in fabric and in whiteness. Cotton ticks are plain and twilled, in imitation of linen ticks; and there is a kind called union tick, composed of linen and cotton. Gingham is a thin chequered cotton. Counterpanes, a corruption of counterpoint, have small

protuberances arranged according to various patterns. Marseilles quilts are more elegant than the former; it is a double cloth, with a third of softer material between, kept in its place by the quilting done in the loom. Cotton quilting is made for waistcoat-pieces, resembling diaper. Jean is a twilled cotton, both striped and white. Satin jeans are woven like satin, with a smooth glossy surface, and are used for stays, shoes, &c. Dimity, an article well known, is made striped or plain; now much used for curtains. Fustian is a coarse twilled cotton, comprehending several varieties, as corduroy, jean, velveret, velveteen, thickset, thickset cord, and other stout cloths for men's wearing apparel. Common plain fustian is called pillow; when of a strong twilled texture, and cropped before dyeing, it is called moleskin; and when shorn after dyeing, it is called beaverteen.

Cotton goods, particularly the finer fabrics, as muslins and bobbin-net lace, are subjected to a process by which the downy fibres of the web as it comes from the loom are removed, and the fabric is presented in a more finished state of manufacture. This process formerly consisted in passing the web in its whole width rapidly over and near to the upper surface of a semi-cylindrical piece of red-hot iron placed horizontally, by which the fibres projecting from the surface were consumed in a moment, while the fabric itself passed unhurt over the burning mass. Had the machinery by which this was effected been suddenly stopped before the web was raised from its perilous position, the whole would have been enveloped in flames.

This method of singeing muslin, which was practised at Glasgow and in Lancashire, has been in some factories superseded by Hall's patent process, which consists in the application of gas to effect the same purpose as the red-hot iron. The latter is replaced by a tube similarly placed, and perforated in its upper side with numerous small holes as jets through which the gas passes. When the gas is ignited, the muslin is passed rapidly over the flame in a manner similar to that already mentioned. Improvements were introduced into this process by the patentee, by which a draught of air is created over the series of jets when acting as burners; and the web being then rapidly passed over these burners, the air forces the flame of the gas through the interstices of the fabric, and all the loose and projecting fibres of the thread composing the web are instantaneously consumed as before, without in the least injuring its substance or texture. The application of this process creates the distinction between gassed and ungassed goods.—R. W.]





WOOLLEN AND WORSTED.

INTRODUCTION.

THE Classes which are here united together are so treated in consequence of the practical difficulties attendant upon their separation being so great as to render it advisable rather to include the objects embraced by both Classes under one general division. The manufacture of woollen and worsted goods can scarcely be considered inferior in importance to that of cotton, employing a large amount of capital, and giving support to many thousands of operatives and others. The number of Exhibitors in the conjoined Classes exceeds the proportion of those in the former Class by a very large sum. In Class 11 there are little more than sixty Exhibitors; whereas, in the United Classes, 12 and 15, there are about five hundred. This disproportion is rendered in part accountable by a closer examination of the Catalogue, when it will be found that the great majority of the Exhibitors in Class 11 (Cotton Manufactures) are really producers of the materials they display, whereas in the present Classes many are producers, but a very large number are simply proprietors, or, in the commercial world, vendors of such materials—a class of persons always numerically greater than the preceding.

Class 12 embraces the following subdivisions:—A. Broad Cloths; B. Narrow Cloths; C. Flannel; D. Blankets; E. Woollen Cloaking; F. Serges; G. Tartans; H. Worsted Stuff Goods; I. Woollen, Worsted, Alpaca, and Mohair Yarns.

Class 15 includes mixed fabrics and shawls under the subdivisions—A. Mixed Woven Fabrics, such as Cotton, Silk, and Linen Wares; and B. Shawls, woven and printed.

The position in the Building of the articles included in these Classes is generally in the South Transsept Gallery, and on the Ground Floor, on the left hand, or South side (proceeding westward), near the western termination of the Nave. In the latter are arranged the cloths, worsted alpaca, and mohair goods; shawls, &c., are displayed in the Gallery, and extend through Areas 10 to 17. From the delicacy of their nature and colours they are inclosed in glass cases, the artistic arrangement of which gives a pleasing character to this part of the Gallery.

The great manufacturing localities for goods contained in these Classes are Chippenham, Frome, and Bradford, in Wilt; Wootton-under Edge, Stroud, Leeds, Huddersfield, and Halifax; Galashiels, Hawick, and Selkirk, are localities in which particular descriptions of wool and narrow cloths are produced. Blankets are manufactured chiefly at Witney, Dewsbury, and Oakhampton. Flannel is produced in large quantities in the Frizerjalds, also at Rochdale and Stroud. Tartans form a characteristic manufacture of several northern towns. But the town of Bradford presents the most conspicuous example of a locality deriving a large share of prosperity from the production of a peculiar description of goods—the worsted stuff goods. In 1801, this town had a population of about 6,400, which, in thirty years, had multiplied to upwards of 23,000, and has since increased even more rapidly. This is due, in a great measure, to the extraordinary success which has attended the manufacture of mixed fabrics, and especially of worsted stuff goods. The spinning of worsted yarn alone employs many extensive factories, which supply others equally extensive with material for weaving the goods to be sold. A very large population, not under 9,000 or 10,000, is now employed in these factories in connection with them. Latterly the alpaca manufacture has risen into great importance, and with the manufacture of fabrics made of wool and cotton, and of wool and silk, constitutes the staple industry of this town.

The cotton manufacture generally has for a long period been regarded as one of the most important branches of our national industry, and though less extensive than that of cotton, still holds a highly influential position, and furnishes the means of support to many thousands of our countrymen. It has been computed that more than 312,500 people are employed on the whole in this manufacture, which has been calculated to amount to the annual value of about 25,000,000*l.* The introduction of new materials either for use alone, or in connection with cotton, has at times given an extraordinary impulse to the manufacture, and the character of the goods produced has undergone several important modifications. The manufacture largely carried on at Leeds, viz. the Yorkshire, of a coarse cloth from woollen rags, is very interesting. The rags are torn up by the boys, and their fibrous material is entirely separated; it is then spun in low numbers, and made into a coarse sort of cloth used for lauze, table-cloths, &c. The reproduction of a woven fabric, from material which was formerly regarded as entirely waste and useless for such purposes, is a striking illustration of the adaptive capacity of the present day.—R. E.

1 SCOTT & WRIGHT, *Vigo Street, Regent St.*—Designers.

West of England elastic doekskins, in Scotch clan tartan patterns for trousers; new style in the same, and angola for trousers; Scotch angolas for trousers, and maids for railway rugs and shawls for travelling.

2 EAST, LONDON & HOLLAND, 10 *Old Bond St.*—Designers.
Specimens of fancy woollen trouserings and coatings.

3 SCHOFIELD, BROWN, DAVIS, & HALSE, 1 *Gresham St.*—Proprietors.

Flannels in a variety of styles, comprising—

1. Royal Victoria flannels, manufactured from yarn spun from silk and wool. This fabric is superior to flannels made entirely of wool, in the following particulars. It is less irritating to the skin; it shrinks less in washing; the silk increases the strength and durability of the texture, and renders it less liable to tear.

2. Merino flannels, made from yarn spun from cotton and wool. This article is exhibited on account of its durability and cheapness.

3. Flax flannels, woven from yarn spun from a mixture of wool and flax fibre; the latter prepared by the Chevalier Clausen's patent process.

4. Silk warp flannels: these goods are adapted for mantles and the nursery. Two embroidered opera cloaks are exhibited as illustrating the adaptation of the fabric to articles of dress.

5. Thibet flannels, made of choice Saxony wool.

6. Flannels in fancy dyes, comprising pink, rose, cherry, crimson, sky blue, gentianella, orange, canary, scarlet, &c.

4 TWEEDALE, JACOB, & SONS, *Healey Hall, near Rochdale, and 56 Wood Street, London*—Manufacturers.

Pieces of superfine Saxony flannel; fine cricketers' flannel; fine anti-rheumatic flannel; and fine imitation Welsh flannel.

5 LEACH, JOHN, & SONS, 83 *Wood Street*—Manufacturers.

Lancashire flannel, made from English and Australian wools. Imitation Welsh flannel, from the same. Medium Welsh, or "anti-rheumatic flannel." Twilled, milled, or cricketer flannel. Saxony flannel and coating. Swanskin. Gause Saxony.

6 WILES, JONAS, 79 & 80 *Walling Street*—Proprietor and Designer.

Striped woven flannels.

Lancashire and Welsh flannels.

7 FOX BROTHERS & Co., 27 *Tobacco Lane, Fard, and Wellington, Somerset*—Manufacturers.

White and dyed woollen serges.

White woollen blanketing, and blankets.

Hosiery yarns.

8 POWELL, SAMUEL, 52 *Regent Street*—Inventor, Patentee, and Proprietor.

Double-faced cloth, having a perfect finish on each side, of two distinct colours, woven in one single fabric.

Specimens of superfine double-faced cloth for coats, vests, trousers, ladies' paletots; and stout cloth, for overcoats.

The novel application of these fabrics embraces every description of clothing which can be made reversible upon the patent mode of construction of the inventor. The illustration of their application will be seen in Class 20.

9 BROWN & FORSTER, 3 *Vigo Street, Regent Street*—Proprietors.

Trouserings, in doekskin and cassimeres; in Scotch tweeds, and natural Cheriot wool.

Waistcoating of wool, of wool and silk, of silk, of cotton, and of China grass; all of British manufacture. Embroidery on cloth and on silk.

10 MURLEY, W. & C., 4 *Bow Churchyard, C*—Inventors.

Waistcoat lengths of various designs in cotton; cotton; silk, wool, and cotton; silk and silk and linen; wool and cotton.

11 GOODWIN, JOHN, *Lawrence Lane*—Proprietor.
Samples of vestings. White and coloured cotton. Livery valencias, silk figured cas China grass lustrous, mixed fabric.

12 BULL & WILSON, 52 *St. Martin's Lane*—Proprietors.

Fine black cloth, for gentlemen's coats.

Fine blue cloth, manufactured at Bradford, Saxony wool, indigo dye, suited for naval forms.

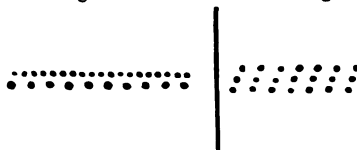
Fine scarlet cloth, manufactured at Stroud, shire, suited for military officers' uniforms.

Black beaver cloth, for overcoats; woven process, invented by Mr. Daniells, of Fries Bath. Two shuttles are employed in the one carrying the fine or surface thread, the stout or backthread, each placed in a distinct

The annexed cut shows a section of cloth in patent process, in which the arrangement of in the patent cloth is represented in fig. 1 as two shuttles, and in fig. 2 as woven with the

Fig. 1.

Fig. 2.



Reversible Witney cloth, for travelling manufactured by Daniell's patent process.

Registered double-surfaced beaver, for overcoats.

Himalaya cloth, for warm outside garments the wool of the Cashmere-shawl goat.

Fine coloured cloths, for coats, manufactured at Wilts.

Clarendon cloths, for summer paletots, as at Trowbridge.

Black milled doekskin, for pantaloons.

Fine single-milled cassimeres and Sardinia waistcoats and embroidery, manufactured at same, embroidered.

Single milled fancy doekskins, of new design looms, manufactured at Trowbridge, Wilts.

13 CLARK, JOHN & JAMES, *Essexhall Street and Trowbridge, Wilts.*

Worsted black single cassimere; patent b tian, and ladies' cloth.

Satin-face doekskin; satin-face single doek and single doekskin.

Fur Janus beaver.

14 SMITH, JOHN BLANK, & Co., 55 *Essexhall Street*—Proprietors.

Woollen cloth rendered waterproof, with porous to air, the texture and appearance as

15 LOCKE, JAMES, 119 and 127 *Regent St.*—Manufacturer.

Scotch tweeds for deer-stalking riding, and for summer and warm climates.

Cheriot wool tweeds, for shooting and specimens of the wool of which they are various stages of manufacture.

Regulation tartans, as worn by the Scot regiments.

Scotch mounds for riding and travelling tartan shawls.

Scotch linen-wool, for the sea-side.

- 16 STANCOMB, J., & SON, *Trowbridge, Wilts, and 19 Basinghall Street, London*—Manufacturers.
Samples of mixture doeskins, fancy moleskins, fancy Angolas, and fancy moleskins, exhibited for fabric and texture.
Samples of fancy Angolas, twilled buckskins, imperial cloths for summer coats, and thin and stout Venetian cloth.
- 17 STANCOMB, W. & J., juns., *Trowbridge, Wilts, and 14 Basinghall Street, London*—Manufacturers.
Several samples of single elastic, and single moleskin, of fancy texture; all wool.
- 18 SHEPPARD, W. B. & G., *Frome, Somerset, and 7 King Street, Cheapside*—Manufacturer.
Woollen cloths, Venetian cloth, and fancy coatings. Single and milled, plain and fancy cassimeres.
- 19 BARRER, HOWE, & MEAD, *19 St. Paul's Churchyard*—Designers and Proprietors.
West of England and Yorkshire superfine broad cloths. Moscow and royal British beavers. The Alpa Vicuna royal shawl. Royal beaver shawl.
- 20 BRETT BROTHERS & CO., *Wood Street*—Designers.
Piece and wool-dyed black cloths. Wool-dyed rifle-green cloths. Piece-dyed black cassimeres. Wool-dyed black doeskins. Fancy trouserings of various styles and qualities.
- 21 HUDSON and BOUSFIELD, *Leeds*—Manufacturers.
Llama, Venetian, and superfine cloths.
- 22 SLATER, E., *Leeds*—Manufacturers.
Black wool baratheas cloth.
- 23 WALKER, JAMES, & CO., *Bedford Street, Leeds*—Manufacturers.
Mohair cloths, various colours, for making and trimming ladies' paletots, first and second quality. Ladies' cloths, Union, and all wool Tweeds, various colours, for ladies' and children's cloaks.
Fancy woollen cloakings, for lining gentlemen's coats.
- 24 SNELL, J., *Leeds*—Manufacturer.
Superfine twilled summer cloth.
- 25 HAGUES, COOK, & WORMALD, *Leeds*—Manufacturers.
Spanish stripe and drab beaver cloths; white, coloured, and horse blankets.
- 26 IRWIN, E., *Leeds*—Manufacturer.
Woollen cloths.
- 27 EYRES, W. & SON, *Leeds*—Manufacturers.
Woollen cloths.
- 28 HARGREAVE & NURSEYS, *Furnley Looe Mills, near Leeds*—Designers and Manufacturers.
Royal chameleon, elastic; transferable cloth; Vicuna fur, with woollen back; dyed black cloth, from colonial wool.
- 29 SMITH, WM., & SON, *Leeds*—Proprietors.
Piece-dyed sound wool black cloths. Mohair cloths, coloured. Mixed napped Petershams. Indigo dyed blue pilots. Corbo beavers. Mixed Witney.
- 30 LAMBERT, J., *Leeds*—Manufacturer.
Ladies' coatings; tweeds, Circassian, Venetian, and mohair cloths.
- 31 BINKS, B., *Leeds*—Manufacturer.
Superfine woollen cloths.
- 32 THORNTON, FIRTH, & RAMSDEN, *Leeds*—Manufacturers.
Superfine cloths, silk and cotton warp; cashmerettes, and blankets.
- 33 LUPTON, WILLIAM, & CO., *Leeds*—Proprietors.
Olive cloth. Blue carriage lining, indigo dye. Blue cloth, indigo dye.
- 34 SYKES, JOHN, & SON, *Woodhouse Lane, Leeds*—Manufacturers.
Woollens:—Dyed black, medium, fast colour. Brown, light olive, moss olive, dark olive, and light bottle-green cloth, common colour. Bottle-green, woaded colour. Light blue, indigo dye. Invisible green, wool-dyed black, and piece-dyed black, common colour.
- 35 STOW BROTHERS, *Leeds*—Manufacturers.
Superfine woollen cloths.
- 37 FIRTH, EDWIN, & SONS, *Heckmondwike, near Leeds*—Manufacturers.
Blankets: coatings of alpaca wool, mohair, and camel's hair. Cotton diaper rugs, bleached and unbleached.
- 38 HENRY, A. & S., & CO., *Leeds*—Manufacturers.
Woollen cloths and cotton warp cloths.
- 39 BATESON & CO., *Leeds, Yorkshire*—Manufacturers.
Black cloths, piece and wool dyed. Indigo blue cloth, wool dyed. Blue, green, claret, and brown cotton warp cloth, piece dyed. Brown, green, and blue cloth, wool dyed. Medley cloths.
- 40 PAWSON, SON, & MARTIN, *Stonebridge Mill, near Leeds, Yorkshire*—Manufacturers.
Black cloths, piece-dyed, true colours. Mulberry ladies' habit cloth, wool dyed, true colour. Black cloth, and rifle Venetian, wool dyed, woaded colour. Blue Venetian, wool dyed. Olive, black, and rifle, ladies' cloths; and rifle-habit cloth, wool dyed, woaded colours.
- 41 SWAINE, JOSHUA & EDWARD, & CO., *Gomersall and Leeds*—Manufacturers.
Superfine wool-dyed indigo blue Witney duffels. Police and Canadian cloths.
- 42 COOPER, D. & J., *Leeds*—Manufacturers.
Superfine woollen and doeskin cloths.
- 44 HOTHAM & WHITING, *Leeds*—Manufacturers.
Yorkshire flannel.
- 45 CHEETHAM, C. G. & W., *Culverley, near Leeds*—Manufacturers.
Specimens of superfine olive broad cloths of Australian wool. Bottle-green broad cloths. Sample of Australian wool, in case of Australian mahogany.
- 46 SAVILLE, J., *Leeds*—Manufacturer.
Oxford, pilot, and army cloths.
- 47 GOTT, BENJAMIN, & SONS, *Leeds*—Manufacturers.
Woollen cloths:—for the home trade: brown, olive, and blue; and black woaded. For the American market: brown, green, olive, bottle, black, Adelaide, olive brown, olive, Strasburgh, bottle rateen. Drake neck, black, dahlia, Adelaide, olive brown, and olive rateen. For the Chinese market: scarlet, salmon, black, green, gentian, blue, dahlia, ash, purple, and Burgundy.

For the Russian market : orange, green, sky-blue, scarlet, yellow, carmine, and gentian.

For the home trade : lady's brown, ruby, lavender, dove, chocolate, and gentian, cloth.

48 SMITHSON, THOMAS, *Bramley, near Leeds*—
Manufacturer.

Black medium cloth, piece-dyed.
Dark blue ladies' cloth; fine habit cloth; black habit cloth, wool dyed; superfine goods of woaded colours.
Superior black cloth, wool-dyed and woaded colour.
Common wool-dyed black cloth.

49 YORK & SHEEPSHANKS, *Leeds*—Manufacturers, Dyers, and Finishers.

Woaded wool black; second woollen cloth. Piece-dyed black, and piece-dyed black medium, and fast dye.

50 GEORGE, T. W., & Co., *Leeds*—Dyers and Finishers.

Worsted lastings in fast black, not woaded, and in various colours.

51 WILKINSON, JOHN, *St. Helen's Mills, Leeds*—
Inventor and Manufacturer.

New thin ship sheathing, for placing on the ship's side underneath the copper sheathing; thick ship sheathing for placing between the timbers in building.

Patent padding and wadding for garments; soft white medical cloth, backed with India-rubber, for poultices, or under horse-saddles, &c.; soft white saddle-cloth, without India-rubber.

Gun wadding of first and second quality; hair felt for steam-pipe and boiler covering, and for deadening sound.
Indigo blue pilot felt; indigo blue pilot and brown pilot for great coats.

52 WILKINSON, W. & E., *Leeds*—Manufacturers.

Crape, all wool.
Cord, all wool, for summer cloth, manufactured in the worsted manner.

54 ROBINSON, THOMAS, *Deusbury Moor, Deusbury*—
Manufacturer.

Three-points Mackinaw, super merino, merino bath, and rose blankets.

55 CRABTREE, W., *Deusbury*—Manufacturer.

Bath blankets, fine, and striped with fancy colours at the ends.

56 WHITWORTH, J., & SON, *Earlsheaton, Deusbury*—
Manufacturers.

Two horse blankets.

57 STEAD, WALTER, & Co., *Leeds*—Manufacturers.

Superfine broad-cloth, and wool-dyed woaded black. Sample of fine German wool.

58 HALEY, J., & SON, *Bramley, near Leeds*—
Manufacturers.

Woollen cloths, made in the white.

59 HALEY, A. & C., *Bramley, near Leeds*—
Manufacturers.

Woollen cloths, made in the white.

60 PEASE, HEATON, & Co., *Leeds*—Inventors and
Proprietors.

Barège-de-laine cloth, all wool, for dresses; light, even, transparent, and soft.

Saxe-Coburg, Orleans, and other cloths, cotton and worsted, for dresses.

Super quality de-laine cloth, cotton and worsted.

Satin twill, cotton warp and woollen weft, finish of a new description. In colours for dresses; in white for printing. Union, silk warp, and worsted damasks.

61 HARTLEY, J., & SON, *Wortley, near Leeds*—
Designers and Manufacturers.

Heather tweed, woaded; and blooming heather woaded and grained, for shooting-coats, made from Italian wool.

62 WEBSTER, THOMAS, *154 Park Lane, Leeds*—
Manufacturer.

Superfine broad woollen cloth.

63 WEBSTER, D., *Leeds*—Manufacturer.

Superfine wool-dyed black cloths.

64 BRAMLEY WOOLLEN CLOTH COMPANY, *Bramley Leeds*—Dyers and Manufacturers.

Specimens of black cloth, wool-dyed, true and a colour.

65 GREEN, R. F., & SONS, *Leeds*—Manufacturers.

Orleans cloth, in blacks and various shades.

67 GRAY, S., *Calverley, near Leeds*—Manufacturer.

Woollen cloths: drab and blue prunelle livery Russian green prunelle habit-cloth.

68 CROMACK, JOHN JUDSON, *Leeds*—Manufacturer.

Woaded and fast black cloth, suitable for the market—exhibited for superior manufacture and finish.

69 FENTON, WILLIAM, *Eccleshill, near Leeds*—
Manufacturer.

Billiard-cloths, green, crimson, and scarlet.

70 ELLIS, JOHN W., & Co., *12 Upper Albion Street*—
Manufacturer.

Samples of cloth, saved list indigo blues all wool a frieze with cotton warp and Australian wool.

71 WOODHOUSE, JOHN, *Holbeck Moor Side, near Leeds*—
Manufacturer.

Cloth, woollen weft and cotton warp, fast colour. Cloth, common colour, black.

72 BEAUMONT, WILLIAM, *Crawshaw House, near Leeds*—Manufacturer.

Black cloths, made both from Sydney and 1 wool, piece dyed.

74 MIDDLEBROOK, JOHN, *Birstall, near Leeds*.

Superfine cloth flannel, of extra width, and of natural colour of the wool; specimen of coarser quality.

75 SYKES, DAVID, & Co., *Leeds*—Manufacturer.

Black milled cloth.

77 GILL & BISHOP, *Leeds*—Manufacturers.

Brown, gentian, drab, and black mohair.

78 YEWDALL, WILLIAM, & SON, *Raoden, near Leeds*—
Manufacturers.

Woollen cloths of different qualities, viz., 8 stripes, grey list ladies' cloths, and medium cloth of different qualities; milled hair-list and double hair-list cloths.

79 WALKER, J., & SONS, *Millshaw, near Leeds*—
Manufacturers, Dyers, and Finishers.

Single and milled cassimeres figured and coloured.

80 SMITH, WILLIAM, *Batley, near Deusbury*—
Manufacturer.

Wool-dyed indigo blue Whitney. Indigo blue cloth. Green and white mixture, napped pilot. La blue pilot.

81 **SEKARD, M., & SONS, Batley, near Dewsbury—**
Manufacturers.

Lodged blue pilot cloth. Blue mixture, steel mixture, and Oxford mixture Petershams.

82 **JUBB, J., & SONS, Batley, near Dewsbury—**
Manufacturers.

Wool-dyed blue Witney cloth; blue pilot cloth; and brown pilot cloth. Woollen fabric with cotton lining thrown on the back, being a new combination of materials. Blue pilot cloth, piece dyed.

83 **WILSON, DAVID, Batley, near Dewsbury—Manufacturer.**

Indigo blue pilot cloth.

84 **WEBSTER, A., Abbey Mill, Kirkstall, Leeds—**
Manufacturer.

Superfine woollen cloths.

85 **HUDSWELL, J., & SON, Batley, near Dewsbury—**
Manufacturers.

Fancy wrapper for travelling; and fancy lining for overcoats, &c.; made entirely of English wool.

86 **BROOKE, JOHN, & SONS, Hunley, near Huddersfield—**
Manufacturers.

Specimens in each stage of the manufacture of broad woollen cloth. Assortment of broad woollen cloths of various colours, quality, and substance.

87 **WALKER, JOSEPH, & SONS, Huddersfield—**
Manufacturers.

Brown, black, and grey buffalo.
Black alpaca, lavender mohair.
Blue and white mixed mohair. Black mixture mohair.
Low black mohair.
Brown, black, green, royal blue, scarlet, drab, and carlet mohair.
Grey mixed alpaca. Yellow mohair heading. Dog-hair cloth.
All for ladies' cloaks and men's over-coats.

88 **TAYLOR, JAMES, Meltham, near Huddersfield—**
Manufacturer.

Fancy woollens.

89 **LEAROYD, EDWARD, Huddersfield—Manufacturer.**

Specimens of cashmere merinos, used for ladies' boot tops.

90 **SHAW, PETER, Lockwood, Huddersfield—Manufacturer.**

Woaded black broad woollen cloths.

91 **PEACE, AARON, & Co., Clayton West, Huddersfield—**
Manufacturers.

Silk chiné dress. Silk and wool dress.

92 **GREEN, J., Huddersfield—Manufacturer.**

Various specimens of lineys.

93 **HINCHLIFFE, JOHN, & SON, Newmill, near**
Huddersfield—Manufacturers.

Woaded mixed doeskin, and mixed durables, exhibited for cheapness and utility.

94 **KENTON, JONAS & JAMES, Dogley Mills, Huddersfield—**
Manufacturers.

Woollen Silesian stripes for gentlemen's dress.

95 **BENNETT, JOHN & ABRAHAM, Bradley Mills,**
near Huddersfield—Manufacturers.

Black Venetian cloth, manufactured from superfine Prussian wool. Registered black Lahore cloth, from Cashmere wool. Double Napier cloth, one side wool; the other from the goat of Cashmere, and one side wool; the other from the goat of South America, known as Vicuna wool.

96 **HEBBLETHWAITE & LISTER, Market Place, Huddersfield—Designers and Manufacturers.**

Specimens of (all wool) elastic elephants ribs, for trouserings, &c.

97 **CROSLAND, WILLIAM & H., Huddersfield—**
Manufacturers.

Woollen fancy pantaloons cloths, new designs and improved elasticity.

98 **SHAW, JOHN, WILLIAM, & HENRY, Victoria Mill,**
Huddersfield—Manufacturers.

Woaded wool-dyed, black, broad, and superfine cloth. Piece-dyed black cloth and prunelle. Wool-dyed black doeskin and cassimere; and rifle broad cloth and wool-dyed Oxford broad cloth.

99 **MIDGLEY BROTHERS, Huddersfield—Manufacturers.**

Super Angola mixtures for trousers.

100 **HASTINGS BROTHERS, Huddersfield—Manufacturers.**

Cloths—mediums, milled and double milled, or treble milled. Doeskins. Cassimeres.

101 **WRIGLEY, JOHN, & SONS, Huddersfield—**
Manufacturers.

Claret, olive, steel-mixed, green, and light-blue livery cloths.
Bright blue cloth, for carriage linings.

102 **VICKERMAN & BEAUMONT, Huddersfield—**
Manufacturers.

Black broad cloths, cassimeres, and doeskins, piece-dyed, permanent colour and finish.

103 **ARMITAGE BROTHERS, Huddersfield—Importers and**
Manufacturers.

Woaded black elephant beavers, 55 inches wide, great weight, 46 and 44 ounces to the yard, manufactured entirely from Port Phillip wool.

Albert check, requiring no lining for the coats, one side being a plain colour, the other checked.

Albert cloth, the two sides being different colours.

"Exhibition" cloths, 56 inches wide, weighing only twelve ounces to the yard.

Scoured Sydney skin wool, grown in New South Wales, and washed by J. T. Armitage and Co., of Sydney.

104 **LOCKWOOD, JOSHUA, & KEIGHLEY, WILLIAM,**
Huddersfield—Manufacturers.

Specimens of patent woollen cords, velvet and leather cloths, chiefly for trousers.

105 **BARNICOT & HIRST, Huddersfield, Wilsham, and**
Meltham—Manufacturers.

Buckskin, Orleans, crape and fancy doeskin, and hair-line for trousers, made from middle-price colonial (Port Phillip) wool.

106 **BARBER, J., & SONS, Holmfirth, near Huddersfield—**
Manufacturers.

Drab kersey for trousers or coats.

107 **HOLMES, J., & SONS, Scholes, near Holmfirth,**
Yorkshire—Manufacturers.

Woaded black doeskin and Vienna.

108 **MALLINSON & SONS, Huddersfield—Manufacturers.**

Wool-dyed black doeskins, exhibited as specimens of manufacture and finish.

109 **BEARDSSELL, ISAAC, & Co., Thongsbridge, near**
Huddersfield—Manufacturers.

Woaded black broad coating, steel broad coating, and black Venetian coating, manufactured of colonial wool grown by the Australian Agricultural Company.

Woaded black broad single-milled coating, manufactured of a picklock, selected from a Silesian prize wool. Black

and blue broad coating, sheep-wool face, alpaca-wool back; blue coating, royal blue back and green back. Fancy woollen trouserings, three-fold cloth wove, treble-milled, and double-faced. Fancy woollen trouserings. Woaded black face, blue Berlin wool back; double-faced; woaded steel, &c.

110 SHAW, SON, & CO., *Huddersfield*—Manufacturers.

Woollen cloths:—Black superfine broads; fancy coatings.

Fancy trouserings; reversible cloth.

Pattern cards of fancy goods.

111 TAYLOR, J., & SON, *Neusome, Huddersfield*—Manufacturers.

Fancy waistcoatings, wool, silk, and cotton; and woollen trousers' goods (best Angolas); and woollen shawls and scarfs. Ladies' and children's dresses.

112 JOHNSON, JOHN, *Lockwood, Huddersfield*—Dyer.

Floss-yarns in various shades.

113 DAY, J., & SON, *Mold Green, Huddersfield*—Manufacturers.

Merinos (cotton chain shot with woollen), used chiefly for the tops of ladies' boots.

Cashmerettes, cotton shot with woollen and silk shot with woollen; used for summer over-coats.

114 WILLOTT, WILLIAM, & CO., *Huddersfield*—Manufacturers.

Woollen goods, viz., drab livery, kersey. Waterproof drab Devon kersey. Extra treble kersey. Woaded wool-dyed black cassimere; and wool-dyed black doeskin.

115 SCHWANN, F., *Huddersfield*—Merchant.

Fancy vesting called valencias or tolinets, and quiltings. Fancy pantaloons stuffs. Fancy dresses for ladies and children. Cassinets, cashmerettes, summer paletots, and merinos. Shoe and boot fancy cloths. Summer-coat and paletot articles. Woollen beavers, pilot cloths, and napped Petershams. Tweeds. Plaids and checks. Buckskins, doeskins, fancy woollen pantaloons and over-coat stuffs, composed of mohair, alpaca, and Vicuna. "Elephant and rhinoceros" skins. Friezed coatings. Shawls. Mohair headings.

Plain woollen cloth. Red paddings. Carpets. Grogams, barracans, twilled summer cloths. Printed paramattas and merinos. Woollen blankets and horse-covers. Specimen of ornamenting and lettering the show-end (nead-end) of woollen cloths, kerseymere, &c.

116 TOLSON, J., & SONS, *Dalton, Huddersfield*—Manufacturers.

Waistcoatings, comprising figured quiltings, shawl cashmeres, Persian velvets, beavers, low vestings. Trouserings. Challi wool plaids for children's dresses for spring and for winter.

117 WRIGLEY, J. & T. C., *Huddersfield*—Manufacturers.

Moscow beaver, two faces, different colour and finish. Moskitto, two faces, different colour and different material. Janus, nap-face, beavered and Witney, and checked back. Partridge mixture, for shooting-coats. Reversible cloth, finished on both sides. Stockinette, or tricot. Fancy trouserings.

118 SYKES & OGDEN, *Huddersfield*—Wool-cleaners and Inventors.

Drawings illustrative of patent and improved wool-cleaning machine, which will clean 50 lbs. of wool per hour.

Burry and motey wool, with the same cleaned from the burs and motes; and specimens of burs and motes as taken from the wool by the machine, cleaned, and brought into a good state.

119 HINCHLIFF, J. & G., *Huddersfield*—Manufacturers.

Drab kersey, ordinary milled and Devonshire waterproof.

Black and steel doeskins; Oxford and mixture doeskins.

Various fancy woollen trouserings.

120 BEARDSSELL, CHARLES, & SON, *Holmebridge, Huddersfield*—Designers and Manufacturers.

Woollen pantaloons, plain and fancy.

121 STARKY, J. & A., *Sheepridge, Huddersfield*—Manufacturers.

Drab woollen cords. Drab thickest constitution. Fancy, plain, and woollen velveteens.

122 COWGILL, JESSOP, & CO., *Huddersfield*—Manufacturers.

Cashmerettes for coats and ladies' boots.

123 HUTH & FISCHER, *Huddersfield*—Merchants.

Plain and striped Franklin coatings, wool face.

Mohair back double Queen's cloakings.

Mohair back pantaloons.—Registered.

124 CLAY, J. T., *Rastrick, Huddersfield*—Manufacturer.

Woollen trouserings, blue and white angolas; the blue being a pure indigo dye. Manufactured from fine Saxony wool; from Australian wool; and sundry varieties.

Waistcoatings in woollen and silk; and of fine worsted yarn, cotton and silk.

Union cloth, composed of woollen and cotton. Vicuna cloth.

125 SCHOFIELD, JONATHAN, *Rastrick, near Huddersfield*—Manufacturer.

Fancy woollen trouserings, different patterns, and woollen and cotton, mixed.

Silk, woollen, and cotton waistcoatings, in different colours of buffs, drabs, &c.

Patent British cashmeres, all wool, different colours.

Fancy bed furniture in wool and silk, and in wool, silk, and cotton.

Fancy dresses in wool and cotton, &c.

Fancy shawls, all wool, and wool and cotton.

126 NORTON, JOSEPH, *Clayton West, Huddersfield*—Manufacturer.

Summer shawls and coatings. Registered winter woollen shawls, unique; and novelty, having four distinct patterns or appearances in one shawl. Union shawls. Registered goods for dresses, waistcoatings, and cloakings. Table covers. Woollen, alpaca, and rabbit's down glove-cloths. Registered fancy woollen trouserings. Stockinette trouserings. Crochet counterpane.

127 OLDFIELD, ALLAN, & CO., *Lockwood Mills, and Huddersfield, Yorkshire*—Manufacturers.

Specimens of the various stages of the fancy woollen manufacture, from the wool to a warp prepared for the loom; also pattern ranges of fancy woollen trouserings, from the loom to the finished cloth, with a drawing of Oldfield's patent machine for piecing woollen cardings.

Fancy broad cloth for overcoats.

Fancy doeskin trousering, and fancy crape trousering.

Made from fine wool. Exhibited for their manufacture.

Black and brown twist checked tweed, made from waste, &c., without any wool.

Black, brown, and white twist checked tweed, made from waste, &c., without any wool.

128 HOADLEY & PRIDIE, *Halifax*—Manufacturers.

Damasks, for furniture purposes, of different qualities and colours, manufactured of silk, cotton, and wool, either separately or in combination.

129 BROWN, WILLIAM, *Halifax*—Manufacturer.

Damasks:—Cotton and worsted, yarn and piece dyed; cotton, silk, and worsted; silk and worsted.

Table covers:—Cotton and worsted, yarn dyed; cotton, silk, and worsted; worsted.

40 AKROYD, JAMES, & Son, *Halifax*—Spinners and Manufacturers.

Table-covers:—Cotton and worsted, and silk and worsted.

Damasks:—All worsted; cotton and worsted, yarn 1 piece dyed; silk and worsted, and with silk swivel are.

Articles for ladies' dresses:—Silk and cotton; silk and worsted; silk, worsted, and cotton; worsted and cotton.

Plain goods, all worsted:—Serges de Berry, lastings, nocettas, crapes, plain-backs, camlets, shalloons, wildres, full twills, alepinas, merinos, Says, East India nlet, long ells.

Plain goods, worsted and cotton:—Union serges de rry and lastings; cotton warp princettas and full ills; Orleans, lustres, Coburg, cotton warp says, ings.

Worsted and cotton gambroons, for trousering.

Ponchos:—Plain and brocade, striped; aravenas, Vinas.

Yergas, for horse-covers.

Yarns:—Single, two-fold, and four-fold carded yarns; ngle, two, and four-fold combed; single, lustre and usmak weft; single warp; two-fold camlet warp and eft; two-fold lasting warp; two and three-fold Genappe.

130A. ECROYD, WILLIAM & SON, *near Burnley*—Manufacturers.

1. Power-loom Coburg cloth (mixed fabric, cotton and wool, for dresses); range of qualities.

2. Orleans cloth, similar fabric.

3. Saxony Orleans cloth (mixed fabric, cotton and wool), for dresses, differing from No. 2, only in being of a soft instead of bright and sharp texture.

4. Mousseline de laine (mixed fabric, cotton and wool), for dresses; range of qualities, printed and dyed.

5. Power-loom Saxe Coburg cloth, made from cotton and wool; a new fabric, of light texture, with a range of qualities.

6. Power-loom Barège de laine, made from cotton and wool; range of qualities, printed and dyed.

7. Bunting for ships' colours and railway signals, made of power-loom; all wool.

8. Worsted heald or heddle yarn, range of qualities, pun, and twisted, and singed (to deprive it of loose bre), by power; it is used in the weaving of cotton, orsted, woollen, silk and flax fabrics, to effect the ovement of the warp threads during weaving, for which is required to be strong, smooth, and even.

9. Worsted genappe chord, prepared as in No. 8, and ed in the manufacture of braids, fringes, &c., its oothness enabling it to be well combined with silk; ge of qualities.

10. Worsted press bagging, used for making bags, in ich linseed, rape-seed, &c., are crushed to extract the . It is therefore required to be strong and durable, i not to mat together or felt, which would prevent : oil from passing through it.

1 SHEPARD & PERFECT, *Cross Hills Mill, Halifax*—Manufacturers.

Cotton and worsted, all worsted, and silk and worsted masks.

Silk and worsted and cotton and worsted Victoria vel: damasks.

Silk and worsted and cotton and worsted Victoria vel: table-cover.

Plain and brocade striped worsted poncho.

All the patterns are registered.

The manufacturers express their opinion that the :toria velvet damask and table-cover, are in a style that : not been previously made in this country.

The article poncho is used by the natives of certain :s of South America as a cloak, or outer garment. e required length, when cut from the piece, has a slit de in it, for the head of the wearer to pass through.

133 BARRACLOUGH, WM., & SON, *Halifax*—Manufacturers.

Samples of woollen cloths:—Scarlet, green, yellow, and Indigo blue, striped; and scarlet white list; crimson and drab druggetts; red union paddings, two kinds; super red cloth paddings; brown, dark and light grey kerseys; blue linsey; fancy warp tweed; green, red, crimson, and blue printed linseys; white house cloth; crimson and green embossed table covers. Exhibited for cheapness of production and general utility.

134 WARD, JOHN WHITELEY, *Halifax*—Manufacturer.

Cotton and worsted damasks, yard-dyed, fast colours; woven in the power-loom, with Jacquard machine.

Worsted damask, ingrain colour, and ingrain crimson, with borders, for draperies.

Victoria table-cloth, made from cotton and worsted, dyed previous to weaving, fast colours.

135 M'CREA, H. C., *Halifax*—Manufacturer.

Furniture damasks, piece and yarn dyed. Cotton and worsted; all worsted; silk, worsted, and cotton; silk and worsted; and cotton and worsted, Geneva.

Table-covers. Cotton and worsted; silk and worsted; and silk and woollen, yarn-dyed. All registered.

Poncho stuffs, all worsted, used in South America.

136 CLAY, J., & SONS, *Halifax*—Manufacturers.

Linsey, for masons and carpenters' jackets. Plaiding, for drawers. Cricket jackets. Raised kersey. Milled kersey, for colliers' and excavators' smocks and coats. Fearnought, for draymen's coats. Blue flannel, for colliers and sailors' shirts, &c. Galway or Irish flannel. Ironing blanket.

137 AKED, J., & SONS, *Halifax*—Manufacturers.

Pantaloons, plain cotton and worsted, yarn and piece dyed. Fancy checks, yarn dyed.

Mixture coatings, cotton and worsted, yarn and piece dyed. Plain lastings, and super worsted crapes, all wool. Cashmeres, cotton and woollen.

138 WILSON, JOHN, *Forest Cottage, Orenden, near Halifax*—Manufacturer.

Ponchos, Mantuas, and shawls; in woollen, cotton, and worsted.

139 SALT, TITUS, *Bradford, Yorkshire*—Manufacturer.

Alpaca manufactures:—Goods made from alpaca, with cotton-warp, dyed in the piece: alpaca lustres, black, various qualities; coloured and chameleon, in three qualities; alpaca Coburgs, black and coloured, various qualities; figured alpaca lustres: twilled alpaca lustre linings, black, coloured, and various qualities; serge alpaca lustre linings, black, various qualities; coloured plain twilled and satin alpaca mixtures; coloured satin alpaca lustres.

Goods made from alpaca, in its natural colours, with cotton-warp mixtures: plain and twilled mixtures, and Croton coatings, various qualities.

Goods made from alpaca, with silk-warp, dyed in the piece: Silk-warp alpaca lustres, black, coloured, and chameleon, various qualities; figured silk-warp alpaca lustres, chameleon, various qualities.

Goods made from alpaca, in its natural colours, with silk-warp: alpaca mixture poplins; poplins, plain colours; Chiné poplins; satin-striped mixture poplins; silk checked poplins; chameleon silk-warp figured alpaca lustres; silk-warp summer coatings.

Goods made from alpaca, with warp composed of silk and cotton, dyed in the piece: alpaca Incas, colours; figured Amazonians, colours; figured silk-striped alpaca lustres, colours; satin-striped alpaca lustres, black; umbrella cloth; alpaca Madelinas, colours.

Goods made from alpaca, in its natural colours, with warp composed of silk and cotton: satin-striped alpaca mixtures; parasol cloth; figured alpaca amazonians; alpaca Madelina.

Specimens of British alpaca wool, grown by the Earl of Derby.

Specimens of alpaca wool, from the west coast of South America.

Alpaca wool combed. Alpaca yarns.

Mohair manufactures:—Goods made from mohair, with cotton-warp: serge linings, black and colours, various qualities, dyed in the piece; chameleons, chinés, and gauze chameleon, yarn-dyed.

Goods made from mohair, with silk-warp, yarn-dyed: chiné, and chameleon poplins; figured mohair amazons, gauze chameleon and satin-striped.

Specimens of mohair; also combed and in the yarns.

Moreens made from English and Russian wool, various qualities.

Specimens of Russian wool; also combed and in the yarns.

[The alpaca is an animal of the Llama tribe, inhabiting the mountain-region of Peru. The wool or hair is of various shades of black, white, grey, brown, &c., and is remarkable for brightness and lustre, great length of staple, and extreme softness. This wool was brought into general use in this country about 16 years ago by the present exhibitor. Since that time the various obstacles in the way of its successful working have been quite overcome, and the alpaca manufacture now ranks as one of the most important branches of the Bradford worsted stuff trade. The articles produced from alpaca in combination with silk are especially noticeable for their softness and brilliancy. The bulk of the goods, however, are made with cotton warp, and when dyed and finished approach in lustre very nearly to silk. The following is the average yearly importation of alpaca wool into England since its first introduction, viz.: from 1836 to 1840, 7,000 bales per annum; from 1841 to 1845, 13,000 bales per annum; from 1846 to 1850, 20,000 bales per annum. It is generally believed that this last amount is the utmost extent of production in Peru.

The animal has not hitherto been very extensively cultivated in this country. H. R. H. Prince Albert has a small quantity at Windsor Park, and the Earl of Derby has a flock of about 60 at Knowsley. A specimen of Lord Derby's growth is now exhibited by Mr. Salt. Considerable difficulties have arisen in the rearing of these animals in England; but when more correct information is obtained as to their habits in their native district, these will most probably be overcome. Attempts are just now being made to introduce the alpaca into our Australian colonies, where the climate, from its great dryness, is believed to be congenial for its successful naturalization.

Mohair or goat's wool is produced exclusively in Asia Minor. In its raw state it is superior in lustre to alpaca, and is wrought into many beautiful fabrics. The importation of this article has increased from 5,621 bales in 1841, to 12,884 bales in 1850. Mohair yarn is largely exported to the Continent, where it has superseded the yarn formerly spun in Turkey, and is there manufactured into Utrecht velvet for hangings, furniture, lining of carriages, &c., a branch of trade which is now gaining ground extensively in this country.

Russian Donsky fleece wool is of a very coarse description, and was first combed and brought into use in the worsted trade about 20 years ago by the present exhibitor.—G. T.]

140 MILLIGAN, WALTER, & Son, *Harden Mills, Bingley, Yorkshire*—Manufacturers.

Embroidered alpaca and silk furniture-cloths, and dress goods; satin-striped dress goods; damasks; manufactured by a patent process.

Alpaca program coatings.

Coatings, worsted, cotton, silk, &c. Mohair mixtures. Specimens illustrative of the processes of the Alpaca and mohair manufactures, viz:—

Fleece of alpaca wool from Peru, and a superior fleece of mohair or goat's wool from Turkey. The same sorted into five distinct qualities for the wool-comber. The same on the wool-combs, showing the "sliver" or long fibre of quality, No. 4, used in the embroidered alpacas, exhibited as above, and the "noil" or portion of wool left on the comb after the sliver is drawn off, and which is used for making heavy cloths, ladies' mohair cloaks, &c. The same in the various stages of preparation and spinning until reduced to yarn on the spool or weaver's bobbin.

141 SCHWANN, KELL, & Co., *Bradford*—Proprietors.

Worsted merinos, lastings, serge de Berry, satin serge, says, figured Russells, velillos, cristales, cubicas, and alepinas. Silk-warp Coburgs; double-twill; plain and figured Russells, and alpaca lustres; dyed in the piece, in various colours. Silk-warp mixed alpacas, grey-wool—natural colour of the wool. Cotton-warp Coburgs; ditto, double-twilled; plain and figured Russells; Orleans; demi, alpaca, mohair, and twilled alpaca lustres; says; linings, worsted weft; linings, mohair weft; figured Orleans; plain and figured satins; dyed in the piece, in various colours. Cotton-weft lastings and serges de Berry; silk-weft and linen-weft lastings and serges de Berry; dyed in the piece, in various colours. Silk and cotton dresses, dyed in the yarn. Cotton and worsted black and white checks; cotton and worsted fancy dresses; cotton, worsted, and silk dresses. Cotton and wool plaids.

142 ROGERS, G., *Bradford*—Manufacturer.

Cobourg cloth of fine quality: silk and cotton warp.

143 FOSTER, J., & Son, *Black Dike Mills, near Bradford*—Manufacturers.

Goods made of cotton warp and alpaca weft; of cotton and silk warp, and alpaca weft; of silk warp and alpaca weft, and of cotton warp and mohair weft; crapes, silk striped and others; gros-de-Berlins, figured and others; alpaca coatings in various qualities, and varieties of shade; twilled alpaca silk checked fancy coatings; vestings; chiné; damasks. Alpaca, mohair, and worsted yarns. Dyed by Mr. Joseph Holdsworth, Wakefield.

144 JOWETT, THOMAS, & Co., *Bingley, near Bradford, Yorkshire*—Manufacturers.

Cotton warp, and alpaca weft, dyed black.

Cotton warp, and dyed silk warp, and alpaca mixture weft, natural colours.

White silk warp, and brown and black alpaca weft, natural colour.

White and dyed silk warp, and black silk warp.

Dyed silk warp, and black alpaca weft, figured, natural colour.

Dyed silk warp, satin faced, and black alpaca weft; dyed silk warp, figured, with black alpaca weft, suitable either for vestings or dresses.

Cotton warp, plain and figured silk stripe, with alpaca mixture weft.

Dyed silk warp, and dyed linen weft.

Dyed silk warp, and silk weft, figured, and white silk warp, and China grass weft, figured, for vestings.

145 HARRIS & FISON, *Bradford*—Manufacturers.

Circassian cloth: the weft is a combination of the finest wool and silk, which produces the glossy surface it exhibits.

Cloth woven from the hair of the Angola rabbit.

146 ARMITAGE, GEORGE, & Co., *Bradford*—Dyers.

Orleans, Coburg, and Brazilian cloth; mohair, silk and mohair, and silk and alpaca figures, of various qualities and colours, plain and shot. Exhibited as specimens of dyeing.

147 TREKEL, A., & Co., *Bradford*—Manufacturers.

Plain alpaca lustrés and chameleons; plain chameleons, worsted weft; plain fancy stripes and checks; plain satens and alpaca weft; figured Orleans; alpaca lustre figure; twilled satteens and figures; figured Circassians, stripes, and checks, all in cotton warp and piece dyed.

Mohair, or mixed alpaca lustrés, natural colours, silk warp alpaca lustrés, plain, stripes, checks, and figures, natural colours and piece-dyed.

Plain mohair chameleons and Barèges; fancy coloured silk stripes and checks; printed warp, Chinese fancies and checks; silk figures and stripes; and checks, all made of dyed materials.

Mixed alpaca coatings, natural colours.

148 RIPLEY, EDWARD & SON, *Bradford, Yorkshire*—Dyers.

Orleans cloths and Coburg cloths, dyed from white warps.

French de laines and merinos.

Ombre damasks, and alpaca and balzarine brocades, produced by a patented process.

Damask table-covers.

Plain balzarines, dyed from white warps.

All exhibited as specimens of dyeing, &c.

[The business of the worsted-stuff dyer was formerly confined to the comparatively simple process of dyeing goods composed entirely of wool. The introduction of cotton warps in 1834, with various combinations of silk subsequently produced, rendered necessary more varied and intricate chemical processes, in order that a fabric composed of both vegetable and animal substances might be made to receive an equal and regular dye. The large increase of the Bradford trade is, in a great measure, attributable to the energy and skill of the dyers, by whom the object has been accomplished so effectually, that goods made of white cotton warp and worsted weft can be dyed almost, if not quite, as perfect in colour as French merinos composed of wool alone. Some idea of the amount of worsted goods, dyed and finished, may be formed from the fact that the three largest dyeing establishments in Bradford can each turn out about 12,000 pieces weekly, in addition to which there are many dyeing establishments in neighbouring towns principally supplied with goods from Bradford.—G. T.]

149 CRAVEN, J., & SON, *Prospect Mill, Thornton, near Bradford*—Manufacturers.

Lustre Orleans, in different qualities, blacks and colours.

150 DICKMOND, J., *Bradford*—Manufacturer.

Mixed fabrics, composed of cotton, alpaca, and silk, plain and figured, for vestings, dresses, &c.

151 CLOUGH, R., *Bradford*—Manufacturer.

Specimens of merinos, all wool, various qualities.

152 DALEY, JAMES, *Bradford*—Manufacturer.

Specimens of figured bombazines; figured and plain alpaca stripes, silk stripes and checks; figured worsted alpaca and checks, figured and plain alpaca lustrés, alpaca and other mixtures, alpaca and worsted figured cloakings and shawls, plain and figured Orleans and Coburgs; alpaca and double twill. Dyed by Messrs. Ripley & Son.

153 CRAVEN & HARROP, *Bradford*—Manufacturers.

Coburg cloths, black and colours, in various qualities. Paramatta cloths, black. Full-twill cloths, with silk, worsted, and cotton warps. Shawl cloths, in various widths and makes.

Merino and Orleans cloths, black and colours. Alpaca cloths, black. Aprons, black. Morocco, black and colours. Union and worsted damasks.

Canton cloths. Linings and serge cloths, black. Fancy goods, in various styles. Alpaca mixtures, in various qualities and natural colours.

155 HAGGAS, WILLIAM, & SONS, *Keighley*—Manufacturers.

Samples of Orleans, lustreen, worsted lining, and mohair.

156 SHUTTLEWORTH, WILLIAM, & Co., *North Bierley, near Bradford*—Worsted-spinners and Manufacturers.

- | | |
|-----------------------------------|----------------------------|
| 1. Piece of plain fustian. | 8. Silk stuff—mourning. |
| 2. Low figured Orleans. | 9. Low plain mixture. |
| 3, 4, 5. Figured silk stripes. | 10. Shot silk stripes. |
| 6, 7. Fancy figured silk stripes. | 11. The same checked. |
| | 12. Fancy figured Orleans. |

157 CLAPHAM, JOHN, *Bradford*—Manufacturer.

Net, cotton warp, and alpaca weft; net, cotton warp and worsted weft; Coburg cloth, cotton warp and worsted weft; diagonal lining, cotton warp and alpaca weft.

158 CLAPHAM, WILLIAM, *Wilsden, near Bingley, Yorkshire*—Manufacturer.

Coburg cloths, of various qualities and colours.

159 WALL, COCKSHOT, & WALL, *Linton Mills, near Skipton, Yorkshire*—Manufacturers.

Shaded tapestry ground, with various coloured silk figure, and bright varied shades in wool for dresses.

Shot and printed ground Orleans, with coloured silk stripes.

Fine Orleans cloth, in new colour, from a combination of various wools.

Preparations of worsted yarn.

160 MORTON, DAVID, *Baildon, near Bradford*—Manufacturer.

Ends of union tweeds. Cotton warp and woollen weft.

161 KERSHAW, S. & H., *Laisterdyke, near Bradford*—Manufacturers.

Black Orleans cloths, of various qualities.

162 TOWNEND BROTHERS, *Cullingworth, near Bradford*—Manufacturers.

Worsted heald yarns, various folds; worsted genappe yarns, and of various degrees of twist; mohair poplin; worsted and mohair and alpaca yarns; mixed mohair and alpaca yarns; worsted weft and warp yarns.

163 SEMON, SILTZER, & Co., *Bradford*—Proprietors.

Orleans cloth, manufactured by Chapman & Whitaker, Baildon, near Bradford; dyed by J. M. Kirk, Halifax.

Orleans cloth, manufactured by William Lund, Keighley; dyed by J. M. Kirk.

Orleans cloth, lustrés, and mixed lustres, manufactured by J. & R. Turner, Horton, near Bradford; dyed by J. M. Kirk.

164 PEEL, WILLIAM, & Co., *Bradford, Yorkshire*—Manufacturers.

Coburg cloths of various qualities and colours.

Silk warp paramattas, Brazilians, and silk warp double twills, blacks.

165 BOTTOMLEY, MOSES, & SONS, *Shelf, near Halifax*—Designers and Manufacturers.

Figured Angola, composed of mohair and silk, for ladies' dresses.

Figured Genoa lace. The pile has not before been produced in stuff goods.

Figured gauze lace, composed of mohair and silk.

Figured mohair lustre, in different qualities and patterns, &c.

Figured Orleans, in different qualities, &c., composed of worsted and cotton, for dresses, &c.

Mohair serge, in various patterns and qualities, for coat facings, &c.

Orleans serge, for coat facings, &c.

Mohair lustre, plain, composed of mohair and cotton, of various qualities.

165A HOLDSWORTH, JOSEPH, Wakefield—Dyer and Finisher.

Pieces of stuff, mixed fabric of cotton and worsted, and cotton and mohair, figured and plain; exhibited as specimens of dyeing.

166 HOLDSWORTH, JOHN, & Co., Halifax, Yorkshire—Manufacturers.

Crimson merino and green durant, for lining rich damasks. Black and white cotton for ladies' skirts.

Printed Tournays, registered patterns, used for furnitures.

Green and gold, crimson, buff, blue and gold, gold and white, and gold silk and worsted damask.

Crimson and gold, blue and salmon, and crimson, green, and gold yarn-dyed damask.

Blue, giraffe and white, crimson, green, and morone, and blue and salmon yarn-dyed damask.

Green and white and drab and white union damask.

Giraffe and white, blue and white, Ponceau and white, fawn and white, and gold and white union damask, all registered designs for furnitures.

Scarlet, drab, giraffe, Ponceau, sea-green, fawn, blue, rose, crimson, green, morone, and buff worsted damask for furnitures. Ponceau and sea-green Turkey cloth damask.

Green and gold, green, crimson, crimson and gold, green, salmon, and white, blue and gold (silk) yarn-dyed Turkey cloth damask.

Royal blue and buff, crimson and gold, crimson, morone, and gold, crimson, gold, and white silk and wool damask. Green and Ponceau merino curtain, quite new, all for furnitures.

Albert, Victoria, merino, and silk and wool table covers; registered patterns.

Crimson, scarlet, drab, and Ponceau watered moreen, for furnitures.

Coburg and Orleans cloths for ladies' dresses. Black lining for coats. Damask aprons. Merino damask.

Serge de Berri, union, worsted, and silk lasting for buttons.

167 SUGDEN, J., & BROTHERS, Dockroyd Mills, near Keighley, Bradford—Manufacturers.

Plain and striped calimancoes; strong worsted merino, union, and princetta says; strong union, and merino shalloons; merinos; cubicas; summer cloths, double twill; union princettas; bombazet; worsted heald yarns; worsted genappes; mohair and alpaca genappes; 800 specimens of yarns, used in the manufacture of poplins, &c.

168 MILNER, J., & Co., Clayton, near Bradford—Manufacturers.

Orleans. Worsted weft and cotton warp, in different colours.

169 CLARK, J., 56 High Street, Bradford—Manufacturer.

Table cloth, embroidered with thread on crimson sarsenet.

170 SLATER, HENRY, Yeadon, near Leeds—Manufacturer.

Woollen netting, used by gardeners for the protection of the bloom of fruit-trees from frost.

170A NICHOLSON, JOHN, Bradford—Manufacturer.
Specimens of cards.

171 ROBERTS, H., Bradford—Manufacturer.
Grogan coatings.

172 TETLEY, Mrs., Bradford—Producer.
Embroidered quilt.

173 RAND, JOHN, & SONS, Bradford—Manufacturers.

Coburg cloths, cotton warp, worsted weft, of different qualities, blacks, and colours; Coburg cloths, first quality; and with silk warp; merinos, moreens, and worsted warp and weft, single and double twill. Several of the pieces exhibited are of the finest description of worsted goods ever manufactured.

[The following details will convey some idea of the progress and extent of the worsted stuff trade. Messrs. J. Rand & Sons' factory was built in 1803, and was the third erected in Bradford. The population of the town and neighbourhood was then about 6,500; it is now estimated at 90,000. There are at present in Yorkshire (principally in the parishes of Bradford, Halifax, Keighley, and Bingley), 418 worsted factories, with 746,281 spindles, 30,856 power-looms, and employing 70,905 workpeople. Taking the worsted and woollen manufactures together, the increase during the last 16 years has been, in the number of factories 51 per cent.; in the number of hands employed, 116 per cent.—G. T.]

174 HORSFALL, J. G., & Co., Bradford—Manufacturers.

Henrietta cloths, with silk warp and worsted weft.

Fine Saxony cloth, all wool.

Fine Coburg cloth, with cotton warp and worsted weft.

Coburg cloth of various qualities.

175 TOWNEND, SIMEON, Thornton, near Bradford—Manufacturer.

Worsted heald, and genappe yarns, spun from British wools; healds, or harness for weaving woollens, worsteds, linens, cottons, &c.; braids, poplins, galloons, cords, &c. manufactured from genappe yarns.

176 WHITLEY, JAMES, Morton, near Bingley, Yorkshire—Manufacturer.

Alpaca yarns on spools prepared for weaving.

Mixed alpaca and mohair yarns on spools prepared for weaving, in various colours.

177 SHARP, DAVID WILKINSON, Bingley—Manufacturer.

Alpaca yarns on weaving bobbins, prepared by Ross's new process, with improvements.

Mohair yarn on spinning bobbins, two-fold in the hank, and in colours.

Mohair yarn, single in the hank.

Slivers of mohair, combed.

Worsted yarn on weavers' bobbins.

178 QUITZOW, SCHLESINGER, & Co., Bradford—Proprietors.

Berlin wool, in various folds and colours, spun and dyed in England.

Flax, produced by the new patent process of Mr. P. Clausen, viz., flax in the straw, showing on the same stems the fibre both unprepared and prepared, and also unbleached, bleached, and dyed various colours; carded flax-fibre, unbleached, bleached, and dyed; heckled flax-fibre, long flax-fibre, unbleached and bleached.

Yarns, spun from the above flax, alone, and mixed with cotton, wool, and silk.

[To the present time it has been considered impossible to apply existing cotton machinery to the manufacture of flax. Mr. P. Clausen considers that this difficulty now no longer exists, and that by processes adopted by him, it is possible to prepare a kind of "cotton" from flax, suitable for a large number of manufacturing purposes, and capable of being spun in tolerably high numbers. A peculiar part of Mr. Clausen's patent is the bleaching of flax and its disintegration, which is said to be effected

short space of time. It is chemical force of the gas, or the mixture of an acid with the alkali, in which the flax is steeped.—R. E.]

BRIDGEMOUGH, WILLIAM, Bradford, Yorkshire—
Proprietor.

Illustrating the average quality of combing in each county in England.

of Irish, Scotch, and Welsh long wool.

CHERRIS, J., Bradford—Manufacturer.

Coburg cloths and satteens, silk and cotton

OTTOMLEY, J., 6 Cheapside, Bradford—
Manufacturer.

and figured Orleans, embroidered with silk and

cloth, embroidered with gold and silver.

Worsted mixed lustres, embroidered with two silk, in different designs: silk warp and mixed stuff. The embroidering is done by machinery, and so as to embroider figures in any part of the cloth to economise the quantity of silk used in the cloth of the designs.

DOOKY BROTHERS, Bradford—Manufacturers.

Dresses of alpaca and mohair.

GREEN BROTHERS, Bambery—Manufacturers.

Table-covers. Chinese prints for vestings. Angora velvet plushes for vestings. Velvet for furniture and linings of carriages, &c. wool top and yarn.

HENRY, & Co., Darlington—Manufacturers.

Series of worsted manufacture. Series of samples, various stages, from the fleece to the finished

Coburg cloth, 6 and 7 quarters wide, made of re, Cheviot, South Down, Australian, and wool, in brown, black, green, royal blue, scarlet, French grey colours.

Double twill, 7 quarters wide, made of South Australian, and Saxony wool, in claret, sea-green, blue colours.

Pieces are used for ladies' dresses.

Coatings, 7 quarters wide, in very dark blue colours. These are used for gentlemen's suits.

Specimens affixed to the specimens of cloth for ladies' dresses to corresponding marks affixed to the patterns in the same case.

Worsted manufactory was established in 1732, and is now at present to 1,000 hands.

HITT & Co., Abingdon Street, Portland Street, Manchester—Manufacturers.

Velvet, for decorations, furniture, upholstery, &c. linings.

RICHARDSON, & WROE, Chancery Lane, Manchester—Manufacturers.

Chene. Chene barège de Valenciennes. Chene Barège robe de Verona.

R. & T., Galashiels, Scotland—Manufacturers.

Wool plaids. Specimens of Scotch tweeds.

ROCHANE, J. & W., Galashiels, Scotland—
Manufacturers.

Series of Scotch tweed trouserings.

ROBERTSON & SIBBALD, Galashiels, Scotland—
Manufacturers.

Woolen trouserings.

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of car-

190 GILL, ROBERT, Inverleithen, Scotland—Manufacturer.

Regimental tartans of the 79th or Cameronians, the 93rd or Sutherland, the 92nd or Gordon, the 71st or Mackenzie, and the 42nd or Royal Highlanders; the "setts" taken from Logan's "Scottish Gael;" in a summer fabric of cloth, made of fine Saxony wool, and a shepherd's cloth.

The Royal tartan, the Royal Highlanders, the Mac Kenzie, the Sutherland, and the hunting MacDonald tartans, in fabrics for ladies' dresses, made of Saxony lambs'-wool. Specimens of other Scottish fabrics for ladies' wear.

191 INGLIS & BROWN, Galashiels, Scotland—
Manufacturers.

Specimens of Scotch tweeds.

192 LEES, R. & G., Galashiels, Scotland—Manufacturers.

Plaids:—42nd tartan. Mackenzie, Forbes, Fraser, Victoria, Royal Stewart, M'Neil, Gordon, and Shepherdess (large and small check).

Shawls:—Fraser tartan, Royal Stewart, 42nd, Gordon, and Shepherdess.

Cloakings:—Fraser tartan, M'Kenzie, 42nd, Victoria, Royal Stewart, Forbes, and Gordon.

193 CLAPPERTON, T. & G., Galashiels, Scotland—
Manufacturers.

Scotch Stewart and fancy plaids. Scotch tweeds.

194 BALLANTYNE, HENRY, & SON, Galashiels, Scotland—
Manufacturers.

Ladies' woollen scarfs or shawls. Woollen tartans for ladies' dresses. Scotch tweeds.

195 SIME, JAMES, & Co., Galashiels, Scotland—
Manufacturers.

Plaids as worn by the Scotch Highland regiments. Ladies' Scotch plaids, shepherdess and fancy. Gentlemen's royal Stewart plaid. Pieces, Scotch tweed vestings. Specimen of wool and yarn, showing the different stages of manufacture.

196 SANDERSON, R. & A., & Co., Galashiels, Scotland—
Manufacturers.

Scotch woollen clan and fancy plaids. Gentlemen's plaids.

197 FYFE, ALEXANDER, & Co., 77 Queen Street, Glasgow—
Manufacturers.

Twelve pieces of new dress fabrics. One dozen fancy cotton shawls; one dozen union shawls.

197A KNOX, A. L., 9 Cochrane Street, Glasgow—
Manufacturer.

Material for dressing-gowns.

198 RAINEY, KNOX, & Co., 8 St. Vincent Place, Glasgow—
Manufacturers.

Shawl dresses for robes de chambre, wool and cotton, each $4\frac{1}{2}$ yards long, and 41 inches broad.

199 LAIRD & THOMSON, Ingram Street, Glasgow—
Manufacturers.

Set of clan patterns in gala cloth.

200 WINGATE, SON, & Co., Glasgow—Manufacturers.

Harness woven long and square shawls; printed Barège and cashmere and woven woollen shawls. Woollen goods in the piece.

201 CAMPBELL, J. & W., & Co., 34 Candleriggs Street, Glasgow—Proprietors.

Scotch printed goods; texture all wool; viz.:—barège handkerchiefs, British manufacture; cashmere handkerchiefs, French manufacture; square shawls, British and French manufacture.

Grenadine silk shawls, British manufacture.

Fine and super cashmere d'ecosse long shawls, texture all wool, and French manufacture.

Grenadine, fine and super barège long shawls, ground British manufacture.

Barège mufflers, on French ground, Scotch printed, and on cotton and wool ground, British manufacture.

Embroidered square shawls, fabric silk and wool, French manufacture and Scotch embroidery.

Filled long shawls, Scotch manufacture.

202 CROSS, WILLIAM, 62 *Queen Street, Glasgow*, and 45 *Fridry Street, London*—Manufacturer.

Various Saxony wool shawls; clan, shepherdess, and fancy patterns, square; and long Byzantine style, fancy pattern, pure cashmere; and checked and plain Saxony wool plaid dresses.

203 GILMOUR, WILLIAM, & Co., *Glasgow*—Manufacturers.

Scotch woollen tweed trouserings; Scotch woollen six-quarter Saxony tartans.

204 BLACK & WINGATE, *Glasgow*—Manufacturers.

Samples of cotton yarn, spun by the exhibitors. Raw cotton cloth, as from power-loom.

Cheapest cotton Scotch lawn handkerchiefs; one dozen fine cotton lawn handkerchiefs. One dozen cheapest and one dozen fine cotton Scotch cambric handkerchiefs. One dozen cheapest embroidered corner cotton handkerchiefs; four handkerchiefs, fine, of the same description.

Two dozen Scotch cambric handkerchiefs, fancy borders, &c. Scotch cambric handkerchiefs, imitation embroidery, in the loom.

A piece of fine cotton Scotch cambric. A piece of fine $\frac{1}{2}$ bishop's lawn. A piece, fine $\frac{1}{2}$ bishop's lawn.

One dozen cotton fancy shirt fronts, all woven in the loom. A linen shirt front, woven in the loom.

Three fancy linen handkerchiefs. Two dozen fancy printed cotton handkerchiefs. Six fancy printed linen handkerchiefs.

A lady's printed cotton bonnet.

205 LEADBETTER, J., & Co., *Glasgow*—Manufacturers.

Pieces of fancy linen, entire; mixed and union. Linen "listados." Fancy linen drills.

206 BAUMANN & WUNSCH, *Glasgow*—Agents for Manufacturers and Exporters.

Printed shawls of wool, worsted, and cotton, of various styles, dimensions, and qualities; printed cotton shawls and handkerchiefs in same variety. Linens, in various stages of manufacture. Mixed fabrics.

207 HELME, W., *New Mills, Stroud*—Manufacturer.

Cassimere waistcoats, of various colours and texture. Single-milled and half-milled doeskin. Cashmerette, silk warp, woollen wefts. Cassimeres. Sardinians for waistcoats.

208 GRIST, M., *Capels Mills, Stroud*—Manufacturer.

Specimens of mattress-wools, woollen millpuffs, and flocks, used for filling beds and stuffing mattresses, sofa cushions, couches, &c. Manufactured by improved machinery, and purified during the process.

209 MARLING, S. S., & Co., *Ebley Mills, Stroud*—Manufacturers.

Superfine broad cloth, single-milled, wool-dyed, woaded black, &c.; superfine doeskin, treble, double, single, and half-milled; superfine cassimere, single-milled.

210 HOOPER, C., & Co., *Eastington Mills, Stroud*—Manufacturers.

Cloths, wool-dyed, woaded, piece-dyed, &c., viz., broad, black, blue, medley, scarlet, waterproof, fancy coloured, &c.

Single-milled cassimere, black and scarlet.

Patent elastic trousering, and gloving cloth.

211 PLAYNE, P. P. & C., *Nailsworth*—Manufacturers.

Specimens of single-milled, woaded, wool-dyed, black

cloth; superfine, woaded, wool-dyed, ladies' and woaded, wool-dyed, black medium cloth. taining specimens, illustrative of the process of manufacturing woollen cloth.

212 PARTRIDGE, N., *Bowbridge, Stroud*—Des

Double-colour woollen cloth, for office dividing saloons in the East, curtains, &c. A improved red.

213 PALLING, WILLIAM, *Lower Mills, Pains*—Manufacturer.

Piece of double-milled scarlet hunter, dyed wide.

Piece of double-milled cloth, dyed, 54 inch.

Piece of double-milled white, undyed, for t waistcoats.

Piece of fine single-milled scarlet, 63 inches

Piece of billiard cloth, 72 inches wide.

Billiard cloth, green, piece dyed.

214 DAVIES, R. S., & SONS, *Stonehouse Mills*, Manufacturers.

Nash scarlet cloth, for officers' full unif cloth for undress jackets. White cloth for Scarlet cloth, for foreign uniforms. Woaded black cloth; single-milled cassimere; double-single-milled doeskin.

215 SAMPSON, THOMAS, *Lightpill Mills, Stroud*

Machine for twisting the fringe of wool shav West of England wool shawls. Twilled bl Scarlet flannel.

216 OVERBURY, JOSIAH, *Nind and Monk Mills, under-Edge, Gloucestershire*—Manufactu

Superfine Saxony woollen cloths, wool-dye black, rifle, and medley, and blue-indigo, dye

217 PHILLIPS, SMITH, & PHILLIPS, *Melksha*—Manufacturers.

Sample pieces of fine Saxony broad cloth, c woaded olive (of different shades), woaded rifle dyed black.

218 EDMONDS & EDMONDS, *Bradford, Wi*—Manufacturers.

Piece of superfine woollen wool-dyed black on a patent principle.

Piece of superfine blue cloth, made on the ciple.

Piece of superfine woollen cloth, waterproof

219 BARNES, ELIZABETH, 35 *Queen Street*, Designer and Manufacturer.

Counterpane, composed of 9,851 pieces, shape, and about the size of a shilling, with amber-coloured satin, quilted, of same size and a quilted lining; the whole the work of a

220 PETERS, DANIEL, 44 *College Green, Bri*—Manufacturer.

Black single-milled kerseymere.

221 CHICK, ROBERT, *Knapp Mills, near Chard*—Manufacturer.

Samples of drab cloth, made of English wo loom.

222 PHILLIPS, JOHN, *Knapp Mills, near Chard*—Manufacturer.

Striped linsey wolsey, blue and white, mac and wool. Plain blue linsey, and white linsey flax and wool.

These articles were formerly much us middle and lower classes for aprons and pett are again coming into general use, especia inmates of Union houses, and charitable They are durable and close in texture.

- 223 **BIRD, R., Creckherne—Manufacturer.**
Linen, worsted, white and coloured linen and worsted, webs for girths, braces, &c.
- 224 **STANTON & SON, Land's Mill, Fordington, near Dorchester—Manufacturers.**
Drab milled waterproofed cloths, made from English wool; used for driving capes, coachmen's great-coats, box-coats, livery coats, gaiters, &c.
- 225 **ALLEN, GEORGE, St. Stephens Street, Norwich—Manufacturer.**
Elastic cloths for trousers, gloves, &c.
- 226 **ALLEN & BANKS, 21 London Street, Norwich—Proprietors.**
East Anglian woollen cloths for gentlemen's wearing apparel, manufactured from wool grown in the county of Norfolk.
- 227 **GARVIE & DEAS, Perth—Manufacturers.**
Linsey-woolsey, for ladies' dresses. Hand-knitted hose. Hand-loom grass-bleached cotton shirting, &c. Cotton and linen bed-tick.
- 228 **CROMBIE, JAMES, & Co., Cothall Mills, Aberdeen—Manufacturers.**
Scotch tweeds, of various qualities.
- 229 **THOMSON, W., Stonehaven, Scotland—Manufacturer.**
Piece of cloth, being a specimen of a method of working up engine waste, into floor-cloth or carpeting.
The specimen claims notice only as exhibiting an easy and inexpensive method of working up the coarsest engine waste into an article of general utility. The warp is linen or tow yarn twisted, nine pounds per spindle. The weft is made of the least valuable portion of the waste that falls from the wool-carding engines; slubbed or spun thirty-six to forty pounds per spindle. The warp is set very thin, nine threads to the inch, woven plain. The pattern is produced by doubling and dipping one end of the hank of weft into the dye vat, and in weaving it falls into the pattern exhibited. The cloth is durable, from the warp threads being covered and protected on both sides by the weft.
- 230 **BRUNTON, WM. J., & Co., St. Leonard's Factory, Edinburgh—Designers and Manufacturers.**
A variety of fine wool scarf shawls, variously named. Superior gentlemen's plaids—the Dunrobin.
Specimen of German lambs' wool and yarn, of which the shawls are made.
- 231 **BOWMAN, JAMES, & SON, Langholm—Manufacturers.**
Shepherd check tweeds, of Scotch and Australian wool.
Fancy shepherd tweed, and fine shepherd check of Australian wool.
Shepherd check union, and shepherd union of cotton and wool.
Gentlemen's shepherd plaid of German wool.
- 232 **BYERS, ANDREW, & SON, Langholm—Manufacturers.**
Specimen of union shepherd's tweed, cotton twist warp and Cheviot wool weft, for trousers, and of 6-6 shepherd's tweed, made of strong Cheviot wool. Granite tweed, elastic, of foreign wool, double twist. Shepherd's tweed, elastic, double twist, of foreign wool. 39-inch linsey, made of cotton twist and woollen weft. 6-6 shepherd's scarf, for plaid, made from fine foreign wool, double yarn. Railway plaid, or wrapper, made from double twist yarn, foreign wool. 4-4 shepherd's tweed, elastic, double twist, from foreign wool.
- 233 **BENWICK, THOMAS & ALEXANDER, Langholm—Manufacturers.**
Specimens of linsey-woolsey weft, Eskdale shepherd plaid, and Scotch hosiery yarn; Scotch tweed and marble yarn of Australian wool.
- 234 **DICKSONS & LAINGS, Hawick and Glasgow—Manufacturers.**
Scotch lambs'-wool hosiery, &c., of various descriptions, patterns, and qualities, including men's hose and half-hose, Highland clan tartans, women's hose, men's shirts, gauze shirts, long drawers, ladies' vests and dresses, &c.
Clan tartan; shepherdess tartan, and fancy tartan wool plaids. Cheviot, Australian, and Saxony wool trouserings.
- 235 **SMITH, J. & SONS, Saddleworth, near Manchester. Agents, NIELD and COLLANDER, London.**
Fine and superfine and silk warp and stout flannels; fine and superfine and silk warp.
Shawls and scarfs for printing.
- 236 **HAIGH, THOMAS, & SONS, 9 New Brown Street, Manchester—Manufacturers.**
Black broad cloth. The same, wool and cotton.
- 237 **BAMFORD, JOHN, Rochdale, Lancashire—Manufacturer.**
Fine gauze flannel, manufactured from sheep's wool.
- 238 **LEWIS, WILLIAM, Llandilofawr, Wales—Manufacturer.**
Welsh woollen cloth.
- 239 **PEARSON, J., Carlisle—Manufacturer.**
Woollen and cotton trouserings.
- 240 **DALRYMPLE, WILLIAM, Union Mills, Douglas, Isle of Man—Manufacturer.**
Shepherd plaid, cloth made from Australian wool. Striped and Tweed cloth and shepherd plaid, made from the wool of the island, and manufactured by the natives.
- 241 **WHITMORE & Co., Leicester—Manufacturers.**
Worsted yarns for hosiery, fleecy, and for embroidery and soft knitting.
- 242 **BREWIN & WHETSTONE, Leicester—Manufacturers.**
Worsted and merino yarns.
- 243 **BURGESS, ALFRED, & Co., Leicester—Spinners.**
Berlin wool embroidery yarns, spun by the exhibitors, from German and colonial wools.
Soft and hard knitting yarns.
Shetland, embroidery, weft, hosiery, alpaca, mohair, and other yarns, single and doubled.
Specimens of the different wools used in the manufacture of these yarns, and in the various stages of preparation, until finished into yarns.
- 244 **POPPELTON, R., Westgate, Wakefield—Manufacturer.**
Manufactured knitting worsteds and yarns.
- 245 **WILSON, JOHN J. & W., Kendal—Manufacturers.**
Railway wrappers plain, and with varied design and colour on both sides. Stout horse-clothing; also, fine and light clothing, for race-horses.
- 246 **GANDY, GERARD, Kendal—Manufacturer.**
Brace, girth, and roller webs, in worsted and woollen and manufactured entirely with worsted.
Horse sheetings, railway blankets, blue and white seyes, broad and narrow collars-checks, with other woollen articles for the use of saddlers.
- 247 **IRELAND, JOHN, & Co., Kendal—Manufacturers.**
Railway travelling rugs of various qualities, and hospital bed-rugs. Horse blankets of various qualities. Alpaca cloth for ponchos, coatings, &c. Saddlecloths, for foreign markets. Prince's check and kersey, for horse clothing. Serge and collar check, for saddlery purposes. Saxony lining. Tilting, for horse clothing, &c.
Checked flannel, for shirting.

Plaiding, for sailors' shirts.
Lisburn check, for horse clothing.
Linsey and druggat, for women's clothing.
Gentlemen's scarfs (shepherds' plaid pattern).

248 MANSSELL, DAVID, *Brecon*—Manufacturer.
A variety of woollen goods.

249 MARTIN, J., *Cockermouth*—Inventor.
Ventilating waterproof cloth and paper.
Improved mode of making all kinds of cloth and paper, including silk, net, lace, &c., complete repellants of moisture.
The paper is manufactured by I. Cropper, Esq., Burnside, near Kendal.

250 SALTER, SAMUEL, & Co., *Trorbridge, Wilts*—Manufacturers.
Specimens of fine woollen trouserings, comprising fancy plaids, ribbed checks, doeskin, black cross rib, black elastic, black deerskin, black fancy elastic, military mixture, and elastic Angola.

251 HUGHES, ROBERT, *Tregurth, Bangor, Wales*—Manufacturer.
Gown pieces of Welsh linsey, and apron of the same, woven in a loom, invented and constructed by the exhibitor.

252 WILSON, W., & SONS, *Hawick*—Manufacturers.
Scotch mauds, and travelling wrappers.

253 MILLS, ELIZABETH, *Dolgelly*—Inventor and Manufacturer.
Linsey dresses, mixed with silk. Linsey aprons.
Waistcoat-pieces, made of Welsh wool.
Welsh cloth, for gentlemen's shooting-clothes. Cricket cloth. Merionethshire web.

254 LLOYD, WM., & Co., *Newtown, Montgomery, Wales*—Manufacturers.
Various specimens of Welsh flannel, all manufactured from sheep's wool.

255 PIM BROTHERS & Co., *Dublin*—Designers and Manufacturers.
Specimens of plain Irish poplin, double tabinet, corded, tartan, and figured poplins, registered designs; brocaded poplin.

256 ATKINSON, RICHARD, & Co., *31 College Green, Dublin*—Proprietors.
Brocaded and gold-barred Irish poplin, with rose, thistle, and shamrock coloured to nature.
Gold tissue Irish poplins, pattern, Prince of Wales's plume. Irish poplins, brocaded, ribbed, and double; double watered, demi-ribbed, and plain; and shaded, plaided, and figured.
Brocaded and tissue Irish poplin scarfs; Irish poplin waistcoatings tissue with gold; and brocaded and figured.
Striped furniture and figured tabourets. Specimens of all kinds and qualities of Irish poplins.

257 WILLANS BROTHERS & Co., *Island Bridge Mills, near Dublin*—Manufacturers.
Albert and brown mixture, super frieze.
Cambridge mixture, tweeds for shepherd's plaids.
Officers', sergeants', and privates' military tartan.
Woollen shawl yarn.

258 DILLON, LUKE, *7 Parliament Street, Dublin*—Designer.
Pieces of friezes and "rumswizzles," of different colours and substances; comprising light angola, medium and heavy materials for clothing purposes.
The rumswizzle is made from undyed foreign wool, preserving its natural property of resisting wet, and possessing the qualities of common cloth.

259 ALLEN, RICHARD, *28 Lower Sackville Street, Dublin*—Proprietor.

Irish-made heather tweeds, of various shades.
Irish frieze, natural colour, undyed.
Superfine and napped frieze.
Sheep's grey frieze, county Meath colour.
Dark grey frieze, Connaught colour.
Black cassimere embroidered vests.
This portion of Irish manufacture, is, probably, one of the most interesting in Ireland. The designs are by James Healy, a pupil of the Dublin School of Design. They are worked by Miss Hamilton and others.
Irish lawn embroidered vest pieces. Linens, various qualities.

Irish linen shirt fronts and Irish linen shirts; exhibited for quality and work. Frieze wrapper, for gentlemen, lined with Irish tabinet.

Irish sheep's grey and undyed wool frieze pea coats. Four-in-hand frieze wrapper. Black tweed morning coat. Heather-tweed shooting coat. Tweed youth's morning coat. Frieze youth's polka jacket. Frieze Connaught man's coat.

The preceding are exhibited for manufacture, workmanship, and costume.

Fancy tabinet vests.
Frieze embroidered vests of black cloth. Lawn embroidered vests. Linen coats.

Samples of figured and double-watered tabinets, manufactured by Edward Jones, of 3 St. Andrew Street, Dublin.

260 MACDONA, G., *32 Molesworth Street, Dublin*—Manufacturer.

Piece of frieze, designated the "Albert frieze."
Pieces of heather and black tweeds.
Patent drawers, with bands attached.
Black embroidered tabinet vesting, embroidered gold.
Black embroidered cloth vesting, embroidered gold.

261 NICOLLS, ALEXANDER, *Cork, Ireland*—Manufacturer.
Blankets, flannels, swanskins, and friezes.

262 MURPHY, MARGARET, *Ballysmutton, Blesinton, Ireland*—Manufacturer.
Home-made frieze, from wool grown and spun by the exhibitor.

263 NEILL, CATHERINE, & SONS, *Tallaght, Dublin*—Manufacturers.
Brown mixed, and sheep's grey frieze.
Blankets.

264 DALY, JOHN, *Tipperary, Cashel, Ireland*—Manufacturer.
Specimens of plain friezes, of various colours, chiefly used for men's clothing, and horse-sheeting. Manufactured at Rossmore mills.

265 JONES, E., *Dublin*—Manufacturer.
Specimens of tabinets and poplins.

266 REYNOLDS, WILLIAM, *81 Grafton Street, Dublin*—Designer and Manufacturer.
Imperial blue and gold, and white and gold tissue poplin.
White and gold, marone, light blue and silver corded, white and gold shamrock figured poplin.
Imperial blue and amber ("oncidium Devonianum"), crimson and fawn colour furniture poplin.
Imperial blue and white striped, pink and white, sage and violet, cerulean blue and white, cerulean blue and cerise, peach-blossom, jonquill, lavender, amaranthe, rose de Chine, white, apricot, and Imperial blue double-watered furniture poplin.
Scarlet, "juif errant" green, and emerald unwatered furniture poplin.
Rose de Chine and white corded furniture poplin.
Jonquill, apricot, and cerulean blue semidouble corded poplin.

grey, white, blue, and cerise, tri-couleur sham-
red poplin.

blue, fawn and scarlet, fawn and violet satin
poplin.

and white, solitaire and white, and pearl and
ided poplin.

Victoria, Royal Albert, Royal Stuart, and Gordon
plaid.

blue and white checked poplin.

red and stone-colour semidouble poplin.

blue, couleur de rose, and vers d'Iilly plaid

and amber furniture poplin (Shrewsbury

R. WILLIAM, & Co., Dublin—Manufacturers.

Fabrics; plain and shaded, figured, watered
and, and brocaded poplins.

and, figured, striped, and velvet tabarets.

woolens manufactures and small wares. Pattern
books.

ELLY, J., & Co., Witney—Manufacturers.

ty of Witney blankets.

URLEY, EDWARD, Witney—Manufacturers.

blankets, made from different descriptions of
wools.

made from merinos; from half-bred merinos;
South-downs; from half-bred Downs; from
re long wool; from Cotswold wool; and from
of the previous lots, and some Welsh lambs

crib blankets, girth and roller webs, &c.

**MR. WILLIAM, Chipping Norton, Oxfordshire—
Manufacturer.**

check for winter horse-clothing; in new and
worn, with a specimen suit of horse-clothing,
illy bordered.

red double kersey check for improved venti-
lating-clothing, combining the advantages of a
kersey-clothing and a blanket; various patterns,
men suits made up in a new method.

kersey check for clothing race-horses; various
with a specimen suit, and a suit of blanket
or training race-horses.

check for summer horse-clothing, in new
with a suit of clothing.

webbing for horse-clothing. Girth, belt, and
bing. Railway aprons.

cuna beaver cloth, fine, for ladies' cloaks; and
gentlemen's great-coats.

for gentlemen's trousers.

registered Alpa Vicuna Royal shawl; specimens
terms and colours.

Royal shawls, in various patterns and colours.
awls.

red winter coverlets for beds.

arlet, woven in imitation of the Indian tambour
work, and ornamented with needle-work.

l "puss" bagging, shown in various substances
and.

"puss" cloth. Venetian cord, in a variety of

**EELER, WILLIAM SIDNEY, 4 Ludgate Street,
—Manufacturer.**

of patent fur beavers; patent dress beavers;
hair cloths; fancy doeskins, and woollen and
satin.

velty of the above patent mohair cloth and
vers is in their being manufactured on a prin-
ciple different from that of other cloths, and from
unity of the construction in the weaving, pos-
sible advantages in warmth and wear.

JOHN J., & Co., Devizes—Manufacturers.

lled broad-cloth, waterproof, made of South-
down grown in Wiltshire.

Narrow cloth for trousers, made of the same wool,
with samples of the raw material, in various stages of
manufacture.

273 CARR, T. & W., Twerton Mills, Bath—Manufacturers.

Super-electoral blue cloth (indigo-dyed), and fast black
cloth, from German wool. Bath fur beaver, and dressed
fur—fine Australian wool. Extra-milled black beaver,
and black Venetian, or summer cloth—German wool.

274 JOHNSTON, J., Newmill, Elgin, Scotland—Manufacturers.

Mauds, or plaids, made of undyed or natural brown
wool of different kinds and countries, viz., Cheviot,
down, Australian, Peruvian, Alpaca, Vicuna, &c.
are used as a wrapper for the shoulders in walking,
as in driving.

ty yards each, natural brown tweed, of
various, waterproofed. These cloths are exhibited
and durability.

1

113 in South Transept Gallery.

101

Gallery of the Transept.

275 KERR & SCOTT, 31 and 33, St. Charles Street—

Warehouses
and square greys
wool. Square satin
gold and silk. Square
age harness, wove
Albanian; long s
es. Square crapes, p
and square wool sh
of color
and
Long
scarlet
res
ured
al by

**276 ALLENBY, 193, 195, & 197 Regent Street—
Proprietors.**

Barège shawls of British printing (registered). The
design, by C. J. Lewis, so arranged as to admit of various
combinations of the blocks without destroying in any
part the continuity and completeness of the pattern, with
either plain or filled centre.

**277 WEBBER, JOHN, & HAIR, GEORGE, 31 Milk St. City
—Producers.**

Printed Barège long and square shawls; Cashmere and
Grenadine. Printed handkerchiefs, various; and Foulard
dresses.

**278 JAMESON & BANKS, Honey Lane Market, Cheapside—
Manufacturers.**

Barège long shawls, printed, wool texture; silk and
mixed texture.

Barège square shawls, of the same description.

Cachemire d'Ecosse, printed, wool texture.

Crape square shawls, printed, silk texture.

**279 KEITH, SHOOBRIDGE, & Co., 124 Wood Street—
Producers and Proprietors.**

Shawls: printed Barège long and square; grenadine
silk; Cachmere; mufflers; and satin long and square.

**280 HOLMES & Co., 117 Regent Street—Designers
and Manufacturers.**

Circular shawl, new in form and design. Registered
by the exhibitors.

**281 STANDEN & Co., 112 Jermyn Street, St. James's—
Importers.**

White Shetland knitted shawl. Bridal veil. Pair of
white stockings. Brown, grey, and white gloves—natural
colours. The Shetland wool of which these specimens
consist is hand-spun.

282 LITTLE, MARY ANN, *Merton Abbey, Surrey*—
Producer.

Barège shawls, of British manufacture.
Twilled bandannas, of British manufacture.
Specimens of wax and chintz printing; exhibited for
novelty of design and colour, madder red.

283 SWAISLAND, CHARLES, *Crayford, Kent*—Manufacturer.

Printed Barège shawls.
Printed Chinese velvet for furnitures (or application
plush).
Printed flannels for dresses.

284 CLABBURN & SON, *Norwich*—Manufacturers.

Registered figured Cashmere shawls.
Spun-silk, fancy check, and Albanian silk shawls.
Registered Jacquard figured poplins, and Chiné poplins.
Jacquard figured and plain dresses, mixed fabrics.

285 BLAKELY, EDWARD THEOBALD, *River House Factory,
Duke's Palace, Norwich*—Manufacturer.

Norwich Cashmere green scarf shawl, gold introduced.
Shawls of Cashmere wool, pine and flower pattern; and
pine and flower pattern, gold introduced: the effect pro-
duced is by eighty-eight shoots on the inch: design by
John Funnell.

Anglo-Indian scarfs, shawls, dresses, brocade, &c.

286 TOWLER, CAMPIN, & Co., *Elm Hill, Norwich, and 48
Friday Street, London*—Manufacturers.

Fillover scarfs: silk ground, the pattern extending
four yards in length and two in width. Silk ground
of new designs, and mixed material; the same, white silk
scarf and shawl, printed.

White silk-net shawl, printed. Black silk-net shawl,
printed.

Ladies' paletots, woven to fit the shape, on silk ground,
and of mixed materials, with and without ornamented
villover work.

Black silk net scarf, printed.

287 WHITEHILL, M., & Co., *Paisley*—Manufacturers.

Worsted and cotton scarfs, with tamboured ends; and
shawls and handkerchiefs, embroidered; the same in
wool.

Quilting, cloth, and wool embroidered vests.

Embroidered satin aprons and babies' robes.

Tamboured and embroidered dresses. Zephyr shawls.
Silk dresses.

Plain black scarf and shawl. Cashmere and Barège
scarfs and shawls. Velvet vests. Table-covers. Cloakings.

288 HOLMS BROTHERS, 7 St. Mirren's Street, *Paisley, and
21 Friday St., Cheapside*—Manufacturers.

Fine wool long shawls—the tartans of the clans of
Scotland. Fancy tartan and plain wool long shawls.
Vicuna long shawl. Wool tartan cloaking.

289 BURGESS, CHARLES, *Paisley*—Manufacturer.

Long woven shawls.

290 BAIRD, JOHN, *Paisley*—Manufacturer.

Embroidered French merino ladies' dresses. Embroi-
dered Canton crape shawls.

291 FORBES & HUTCHISON, *Paisley*—Manufacturers.

Paisley woven, printed, tartan wool, embroidered, and
figure gauze shawls. Printed, tartan wool, and em-
broidered handkerchiefs. Printed and tartan wool muf-
flers. Embroidered vests, and robe. Tartan and printed
dresses.

292 ABERCROMBIE & YUILL, *Paisley*—Manufacturers.

Printed long and square shawls.

293 CLARK, JOHN, jun., and Co., *Causeside, Paisley*—
Manufacturers.

Printed Cashmere long and square shawls or plaids.

294 LAWSON, JOHN, & Co., *Caledonia Print Works, Paisley*
—Printers.

Barège printed shawls in wool, and in silk.

295 DICK, WALTER, & SONS, *Paisley*—
Printed Cashmere shawls.

296 ROXBURGH, JOHN & ANDREW, *Paisley*—
Manufacturers.

Woven long shawls.

297 MACFARLANE, SON, & Co., *Paisley*—Manufacturers.

Spun silk fabrics, for ladies' dresses, in clan tartans and
fancy designs.

298 STEWART, ROBERT, *Paisley*—Proprietor & Producer.
HUTCHISON, THOMAS, *Paisley*—Inventor and Patentee.

Machine for inventing and displaying patterns in stripes,
cheques, and tartans, by means of sliding mirrors and
coloured glass, suitable for manufacturers of textile
fabrics, whether in cotton, woollen, silk, or linen, or a
combination of two or more of these materials.

The advantages of this machine are—the facility with
which any pattern, or idea of a pattern, may be set up
and displayed—the variety of designs it can produce—
and the ease and simplicity of accomplishing them. It is
not at all necessary to paint the pattern on paper, after
viewing it through the mirrors, as the scales attached
show at once the required number of threads of each
colour, and how many repeats are necessary for the
breadth of the web, and it displays at once, not only the
repeat, but the whole breadth, and a considerable portion
of the length of the cloth at one view.

By this invention, the precise effect of a pattern may be
produced, in the course of a few minutes, without any
expense, multiplied to any extent, and it may be enlarged
or diminished at pleasure. The chief novelty, however,
of this machine, which is exhibited for its simplicity and
the ease of its adaptation, is, that the precise effect of the
cloth in a finished state is accurately represented, the
crisp transparent effect of a silk fabric being truly given,
as well as the soft and more opaque effect of a woollen
fabric.

This invention is new in principle, being a novel appli-
cation of coloured glass to useful and essentially practical
purposes.

299 MORGAN, JOHN, & Co., *Paisley, and St. Paul's Church-
yard, London*—Manufacturers.

Woven long shawls, of Cashmere yarn and new designs;
of silk and wool; and of mosaic style. Woollen plaids.
Printed Barège long shawls.

300 KERR, ROBERT, *Paisley*—Manufacturer.

India long and square shawls. Printed and fancy wool
long and square shawls.

301 ROBERTSON, J. & J., 3 *Forbes Place, Paisley*—
Manufacturers.

Coloured woven harness, wool plaids and shawls;
coloured printed plaids and shawls, in Barège, Cashmeres
d'Ecosse, and Cashemere fabrics.

302 ROWAT, R. T. & J., *Paisley*—Manufacturers.

Printed Barège and Cashmere long shawls; printed
wool square shawls.

303 MASON, W., & Co., *Honey Lane, Cheapside*—Producers.

Dress fabrics—printed Cashmere and Llama wool tex-
ture.

Printed chiné, glace, and printed and embroidered
"jaspé" cashmere, wool and cotton texture.

304 WELCH, MARGETSON & Co., *Cheapside*—
Manufacturers.

Dressing-gown fabrics.

- 305 SALOMONS, B., & SONS, 42 *Old Change*—Proprietors.
Child's frock, embroidered on French cambric.
A lady's embroidered robe.
Ladies' worked sleeves; worked muslin chemisettes, habit shirts, collars, jaconet collars, and trimmings.
Samples of Irish cambric handkerchiefs, embroidered in Ireland; and of French cambric handkerchiefs.
Specimens of muslin trimmings, flouncings, and insertions. Ladies' embroidered muslin dresses, &c.
Samples of ladies' stays, &c.
Selection of muslin and lace articles, and of articles for mourning, for ladies' wear.
Selection of patterns of new trimmings, for dresses and mantles.
Mixed fabrics of silk and wool, fancy materials, for ladies' dresses.
Embroidered dress and mantle, &c.
- 306 PUGH, J. W., 163 and 165 *Regent Street*—Producers.
Mixed fabrics.
- 307 SAYCE, J., & Co., *Cornhill*—Manufacturers.
Mixed fabrics. Patent piuma, or six-ounce coat, with only one seam in the body, of a material known hitherto chiefly in India, and "manufactured by the poor Hindoos." Gutta percha cases. Plain piuma cloth, waterproofed. A new material, a mixture of silk and vicugna, extra waterproofed.
- 308 GODEFROY, P. A., 3 *King's Mend Cottage, New North Road, Islington*—Inventor and Manufacturer.
Specimens of woven fabrics in various colours, plain and figured, finished by patent machinery. In dressing and finishing the colours of the fabrics are firmly fixed, and rendered brilliant by chemical agency.
- 309 TOWLER, CAMPIN, & Co., *Elm Hill, Norwich, and 46 Friday Street, London*—Manufacturers.
Norwich challi.
Satin striped de laine for ladies' dresses.
Paramatta cloth for ladies' dresses. Figured and plain barge for dresses.
- 310 WILLET, EDWARD, NEPHEW, & Co., *Norwich*—Manufacturers.
Samples of mixed fabrics for ladies' dresses, consisting of black and coloured bombazines and paramattas; plain and figured poplins, in two colours; santillano, china brocade, and estella brocade, figured in two colours; satin striped chiné, three colours; plain and figured bellano, in two colours, &c.
Two patterns of a mixed fabric, composed of materials the produce of nine different countries.
- 311 BOLINBROKE, C. & F., *Norwich*—Manufacturers.
Plain and watered poplins.
- 312 MIDDLETON & AINSWORTH, *Norwich and London*—Manufacturers.
Poplins corded and brocaded, and black paramattas.
- 313 HINDE, E. & F., *Norwich*—Manufacturers.
Bèrèges and brocaded poplins.
- 432 CLARKE, THOMAS, *Stephen Street, Waterford, Ireland*—Manufacturer.
A camelot cloak, which has been in constant use for more than twenty years.
A piece of the same ravelled, to show the texture.
A sample of the like fabric and composition, but of a different colour, warp blue, weft green.
Sample of stuff, single threads, half cotton half worsted, undyed.
Samples of white serge, single yarn; grey serge, double yarn; green serge, single yarn; and blue serge, double yarn.
Sample of stair carpet, green, taken off a piece which has been in use for 16 years; all wool, both warp and weft, and woven by a linen weaver.

A sample of green flannel, as used by the peasantry and working people of the counties of Waterford and Wexford, Ireland.

- 459 SMITH & WHYTE, *Glasgow*—Manufacturers.
Embroidered robe de chambre and lady's dress.
- 460 ROBERTS, R., *Llanberis Road, Carnarvon, Wales*—Manufacturer.
Linsey-woolsey manufactures.
- 461 ARCHIBALD, JANE R., *Tillicoultry*—Manufacturer.
Plaid shawls.
462, 463, 467, and 468 placed on the North Wall with Class VI.
- 462 BRUNTON & NESBIT, *Edinburgh*—Producers.
Shawls and scarfs.
- 463 BRAYSHAM, GEORGE, 61A *Park Street, Camden Town*—Maker.
Pictorial mosaic cloth-work table-cover or quilt, comprising 32 compartments exclusive of the centre, which is the arms of England; each compartment being an imitation of some well-known picture, made of coloured cloths, fine-drawn together so as to imitate paintings, the features being worked with the needle, the whole surrounded with a border. This work has been the labour of leisure hours for a period of nine years and a half.
- 464 GIBSON, WILLIAM, & Co., *Tillicoultry, Alloa, Scotland*—Manufacturers.
M'Kenzie and M'Lean clan tartan woollen shawls. Fancy woollen shawls. Frazer and Forbes clan tartan, for ladies' dresses and cloaks.
- 465 ARCHIBALD, ROBERT, & SONS, *Tillicoultry, Alloa, Scotland*—Manufacturers.
Rob Roy, Colquhoun, and M'Donald of Staffa tartan long shawls. Malcolm and Bruce tartan wool shawls. Fancy wool shawls. Royal Stewart and Gordon tartans for cloaks or dresses. Fancy tartans. All of woollen fabric.
- 466 PATON, J. & D., *Tillicoultry, Alloa, Scotland*—Manufacturers.
Long wool shawls, of various Highland clans and fancy patterns.
Fancy wool tartan, designed by Messrs. Romanes and Paterson, Edinburgh.
Long wool fancy shawls, designed by Messrs. Mitchell, Miller, and Ogilvie, Glasgow.
Long wool fancy shawls, designed by Messrs. Arthur and Frazer, Glasgow.
- 467 SINCLAIR, JOHN, jun., 49 *South Bridge Street, Edinburgh*—Manufacturer.
Scarf plaids, Royal Stuart; Victoria; Sinclair; Sutherland or 42nd; all wool. Pieces of Tartan, Royal Victoria; McDonald of Slate, or Duke of Rothesay; Sutherland or 42nd; all wool.
Tartans were worn in the Western Islands and Highlands of Scotland as early as 1099, and are supposed to have been introduced by Queen Margaret. Each clan has a separate pattern, or tartan, for itself, bearing its name, and worn by all the individuals of the clan.
- 468 WILSON, W., & SON, *Barnackburn, near Stirling, Scotland*—Manufacturers.
Woollen manufactures.
- 469 BROWN, JAMES & HENRY, & Co., *Ettrick Mills, Selkirk, Scotland*—Manufacturers.
Scotch tweeds and fancy woollens, of various new mixtures and styles.

470 HALLY, GEORGE, *Perthshire*—Manufacturer.
Plaids in several varieties.

472 HUGHES, W., *Bennygroes, near Carnarvon*—
Weaver and Producer.
Worsted and silk dresses.
Aprons, of Welsh linsey. Table-cover, of wool and flax, a specimen of Welsh weaving.

474 SCHOFIELD, ABEL, *Spring House, near Delph, Sackvilleworth*—Manufacturer.
Patterns of woollen goods manufactured in the years from 1780 to 1820, showing the styles of that period.
Fine doeskin, or satin-fuce, all wool, suitable for vestings, ladies' or babies' clothing, &c.
Fine buff prunell cashmere, a little milled.
Fine white cashmere, containing 144 picks in the inch, for shawls, ladies' dresses, &c.
Crimson merino.
Maude fabrics for shawls, and specimens of colours dyed in shades.
Fine patent black broad cloth and cassimeres.

475 HUGHES, WILLIAM, *Bethesda, near Bangor, Wales*—
Manufacturer.
Durable bed-covering.

477 WATSON, J. & A., *Galashiels, Scotland*—
Manufacturers.
Scotch clan and fancy plaids. Ladies' woollen scarfs or shawls. Woollen tartans (ladies' dresses). Scotch tweeds.

480 ROBERTS, W. & Co., *Galashiels, Scotland*—
Manufacturers.
Pieces of Scotch tweeds.

481 REID, D., & SON, *Langholm*—Manufacturers.
Cotton and Scotch wool hose; shepherd's plaid check made from Cheviot wool; Australian and German wool; fancy check made from wool (elastic); blue grey check, made from Australian wool; fancy union tweed, made from cotton and Cheviot wool.

486 KELSALL & BARTLEMORE, *Rochdale, Lancashire*—
Manufacturers.
Flannel: ordinary quality, English wool; middle quality, New Zealand wool; fine quality, Australian wool.
Electoral and Saxony flannel, and electoral shawl, German wool. Gauze and imitation "Welsh" German wool.

487 BROOK, JOHN & SON, *Upper Thong, near Huddersfield*—
Manufacturers.
Specimens of woated black broad cloth, cassimere, and doeskin.

490 BURNLEY & SONS, *Heckmondwiche, near Leeds*—
Manufacturers.
English, Witney, and Irish blankets. American Mac-kinnow and scarlet striped blankets. American blankets, for clothing purposes.

493 THOMAS, W., *Haworth, Keighley, Bradford*—
Manufacturer.
Dyed wool, combed; wool-dyed yarns, in hanks and on spools; dyed yarn, floated with silk.

496 STOWELLS & SUGDEN, *Bradford*—
Manufacturers.
Crimson and white two-fold mohair yarn.

500 HIS ROYAL HIGHNESS PRINCE ALBERT.
(*Main Avenue, West.*)
Two brocaded dresses, manufactured by T. Gregory and Brothers, Shelf, near Halifax, Yorkshire. The weft of the Cashmere wool shorn from the goats kept by H.R.H. Prince Albert, in Windsor Park. The warp is of silk.

Two shawls and a specimen of coarse cloth manufactured by J. Haley and Son, Bramley, near Leeds. The whole of the material is of the Cashmere wool as above described.

The Cashmere goat's wool, of which these articles are manufactured, consists of two distinct materials called wool and kemp. The wool is beautifully rich and soft to the touch, and is probably superior in this respect to the finest continental lamb's wool, and equal to the richness of the Thibet wool. It is also divisible into qualities. The kemp presents the appearance of a coarse rough hair, such as is avoided by the manufacturer in all purchases of wools, deteriorating as it does the appearance of even common fabrics by its inferiority and harshness.

The two wools, as shorn from the goat, are closely intermingled, and present the appearance of coarse hair, wool of a very low character; but a minute inspection shows that part of it is of a very fine quality. In order to separate this fine quality from the coarse, it is necessary to do so fibre by fibre; and this has to be effected entirely by hand, no machinery having as yet been applied to this purpose. The process is both difficult and tedious, one person not being able to separate more than half an ounce in twelve hours.

After the separation of the qualities, it is desirable further to divide it, in order to make a warp yarn of fabrics like the shawls; but this was impossible in the present instance, owing to the small quantity produced otherwise the fabric would have been much finer. In the dresses this result has been achieved, because the warp of silk, and the quantity required for the weft was therefore not so great in proportion.

The specimen of coarse cloth is manufactured entirely of the coarse hairs or kemp after it is assorted from the finer material of the wool. In a general way this is considered worthless.

501 UNDERWOOD, W., *1 Vere Street, Oxford Street*.
Heraldic tapestry hanging. The Royal Arms can be substituted by the arms of any other family. Cloth curtains in various colours. (*In South Transept Gallery.*)

Nos. 463, 467, and 460—Ground Floor, North Side, between Western Refreshment Room.



New style of pattern and cloth for furniture. Finished pattern, forming a shape for wainscoating. Specimens for wainscoating, with variety of colours.

5 ROBINSON, J. & R. & Co., 30 Milk Street, Cheapside—Manufacturers.

Black and coloured velvets for vestings, and for church and up'lstery purposes.

Black amozines for professional robes.

Plain silks and satins for vestings.

Silks and satins for cravats.

Figured silks for vestings and dress.

Figured satin for fancy purposes, got up as a remembrancer of the Exhibition.

6 ROBINSON, J. & T., Fort Street, Spitalfields—Manufacturers.

Black and coloured velvets.

7 STILLWELL, JAMES, & SON, 7 White Lion Street, Norton Folgate—Manufacturers.

Samples of crimson, cerise, blue, and gold brocatelle, for curtains, &c. Samples of claret, green and gold, and cerise and white damask.

Pattern of Dalmatia robe, worn by the Queen, at her coronation.

8 WASHINGTON, T. & DAVIES, W., 13 & 14 Milk Street, Cheapside—Manufacturers.

Waistcoatings in lengths, of Spitalfields manufacture, in imitation of foreign furs.

9 WALTERS & SONS, Wilson Street, Finsbury, and Kettering—Manufacturers.

Specimens of plush used in the manufacture of silk hats.

10 WILSON, JAMES, & Co., 37 Walbrook—Manufacturers.

Silk plush for hats.

[A variety of causes, in addition to the scarcity of fur, have led to an entire change in the material for hats. At present, the greater number of hats are covered with a tissue of silk plush, laid over a stiff body. The silk plush forms the nap of the hat, and is manufactured in large quantities for this purpose.]

11 SWAN & EDGAR, Piccadilly and Regent Street—Proprietors.

Silks, &c., Spitalfields manufacture—Black gros de Naples, Ducape, gros de tour, glacé, satin, satin Grecian, barrathes, Balmoral, paraphanton, watered silk, velvet, armozine royal robe silk, gros royal, Radzimore, Berlin, Orleans, vest satin and antique watered silk. Manufactured by Messrs. J. Balance & Sons.

Coloured damask figured silk, new ground, manufactured by Messrs. Stone and Kemp. Coloured striped glacé and small check silks; coloured chiné silks, manufactured by Messrs. Winkworth & Procters.

12 DUTHOIT, JONATHAN, 26 Steward Street, Spitalfields—Manufacturer.

Brocade garment silks.

13 BOYD, ISAAC, Spital Square—Designer and Manufacturer.

Registered figured damask silk furniture, "hollyhock pattern;" white watered figured garment silk, "thistle, bell, and heather pattern;" blue tissue and gold figure garment silk, "pansy, lily, poppy, and rose pattern." "Moiré antique," for garments, various colours.

14 GREGSON & BRIEN, Gresham Street West—Agents.

Irish poplin or tabinet, plain, plaids, ribbed, double Irish, watered, and moiré antique. Manufactured by Mr. Wm. M. Geoghegan, 50 Francis Street, Dublin.

15 SEAMER, T., 5 Milk Street, Cheapside—Manufacturer.

Thirty-six inch moiré antiques, English dye and crimson velvet.

16 LEWIS & ALLENBY, 193, 195, & 197 Regent Street—Designers.

Silk, brocaded with colours. Designed by S. W. Lewis. The beauty and difficulty of production of this silk will be more readily understood from the fact that its manufacture requires the use of nearly 30,000 cards and 100 shuttles, and it is stated to be the first instance in which a brocade, introducing so large a number of colours (fifteen), has been successfully attempted in England. Manufactured in Spitalfields.

Brocaded ribbons.

17 GRAHAM, ROBERT, & SONS, 31 Spital Square—Manufacturers.

Velvet, satin, and watered silks.

18 STONE & KEMP, 35 Spital Square—Manufacturers.

Velvets. Figured and chiné silks.

19 SEWELL, EVANS, HUBBARD, & BACON, 44, 45, & 46 Old Compton Street—Proprietors.

Registered figured damask silk, brocaded in various colours, manufactured by Messrs. Campbell, Harrison, and Lloyd, Spitalfields.

Plain moiré antique.

Registered figured damask made in a Jacquard and Bannister loom, by Messrs. Winkworth and Procters, Manchester.

20 CLARK, JANE, 170 Regent Street—Designer and Manufacturer.

Spitalfields enamelled silks, viz.—

A white ground, covered with gold baskets filled with green enamel shamrocks.

A white ground with rainbow enamel.

21 LE MARE, JOSHUA, & SONS, 27 Spital Square—Manufacturers.

Black satinette, of inferior quality, woven by power-loom, and of superior quality, woven by hand-loom. Coloured satinette, of medium quality, woven by hand-loom.

The advantage of satinettes over satins consists in their brilliancy being produced in the process of manufacture, without dress or any other artificial means; consequently they are as cheap and more durable.

Black ducape, watered, of large and small patterns and medium quality.

Black coloured velvet, of medium quality.

22 CORNELL, LYTELL, & WEBSTER, 15 St. Paul's Churchyard and Nuneton—Manufacturers.

Chiné and brocaded sash and other ribbons.

23 CASEY, J., & PHILLIPS, T., 13 Spital Square—Manufacturers.

Silk, velvets, Algerias, gros-de-Naples, glacé, gros, &c.

24 ROBINSON, JAS. & WM., & Co., 3 and 4 Milk Street, Cheapside—Manufacturers.

Crimson velvet for pulpits.

Blue and marone velvets for waistcoats.

Brown and blue plush for coats and vests.

White satin and white tabby silk for embroidery.

White and black satins for shoes.

White and black satins for vests.

White watered and figured silks for waistcoats.

Black serge and white laventine for coat sleeve and skirt linings. Black amozines for robes.

HILL, JAMES, & Co., 31

Manufacturers

ered oak and ivy brooms
l machines.

l machines. Shot glaces, woven by Spitalfields hand-
avers; the colours all British dyes.
satin. Brocaded figures.

OKS, THOMAS, 36 Spital Square—Manufacturers.

rite, Napoleon blue, green and black velvets.
gros-de-Naples.

ink, and Napoleon blue Sutherland silk.
ide and chocolate brown satin.

HOWELL, J., & Co., Regent Street.

richly embroidered silks, manufactured by Camp-
o., Spitalfields. Rich chiné, 12 inch, and rich
l cash ribbons.

OS, J., & SON, 15 Spital Square—Manufacturers.

for parasols, tabby ground, with satin and rip
son of new texture for parasols, with figured
silk, figured, for parasols. Rip figure for the

OS, HENRY, 32 Spital Square, Bishopgate Street—
Manufacturers.

r parasols; satin and figured borders, shot with
ilk; figured satin and damask rip and ducape.
ved silk for umbrellas.

OS, VAVASSEUR, & REX, 9 Trump Street, Cheapside
—Manufacturers.

d poplin dress. Figured satin dress.
d satin, brocaded with many colours.
moiré antique. Napoleon blue satin.

OSBELL, HARRISON, & LLOYD, 19 Friday St.—
Manufacturers.

d moiré antique damask. Scotch tartan satins
ets.
red moiré antique. Brocade figure for vestings.

OS, CHARLES, 19 Gutter Lane, Cheapside—
Manufacturers.

son of Jacquard silk weaving, 29 inches by 24,
of Her Majesty the Queen, and H.R.H. Prince
with emblematic decorations.
ed satin cravats; figured cravats (not satin).
checked bandannas, various widths.
checked Brussels, various widths.
bandannas, corded and plain borders, various

ducapes; black Brussels twill; black military
nd black baratheia twill, all of various qualities.
act, different widths.
watered ducape.
checked bandanna.

twill bandanna, plain and printed.
twill bandanna, plain and printed.
es of silks, raw, China, Bengal, and Italian.
es of silk, thrown, gum boiled off, and dyed.

OSBELL & SNELGROVE, 11 and 15 Vere Street,
et Square, and 19 Henrietta Street—Proprietors.

silks—Shaded glacé silk of British manufacture
rs. Winkworth and Proctors, of Manchester, dis-
ber variety of hues in each shade of colouring.
iber of threads to each shade is near two thou-
rid into about twenty tints in the dyeing,
intermixed in varying proportions throughout.

In addition to the effect of shading, these goods have
undergone the process of antique watering.

Ribbons, manufactured at Coventry (by Messrs. Cox
and Co.); the design, by the exhibitors, representing a
bunch of lilac, made in a Jacquard loom. Shaded ribbons.

34 COURTAULD, SAMUEL, & Co.—Manufacturers.

Specimens of crape and aerophane, in the principal
varieties of quality and style.

35 MASON, GEORGE, Yateley, Hartford Bridge, Hants—
Producer.

Figured damask silk, grown and wound off at Yateley,
North Hants; an agricultural experiment.

English cloth, embroidered with silk, grown and
wound off at Yateley. Manufactured by Messrs. Houlds-
worth, Manchester, with their patent machinery, which
embroiders both sides of the cloth alike.

Fishing gut, from imperfect silkworms.

Waste silk, from cocoons.

36 GROUT, JOSEPH, & Co., Foster Lane—Manufacturers.

Folded and rolled black crape, single, double, treble,
and four threads. Coloured aerophane crape.

Coloured lisse gauze. Gossamer of various colours,
used for veils.

Samples of crêpe lisse. Silk gauze grenadine scarf;
and brocaded. Silk muslin scarf; and brocaded.

Brocaded silk muslin dress, with flounces, &c.

37 DEAR, ARTHUR, 37 Crispin Street, Spitalfields—
Agent.

Figured silks, designed and woven by the pupils of the
Spitalfields School of Design.

38 BROCKLEHURST, J. & T., & SONS, Macclesfield—
Manufacturers.

Raw silk, reeled. Thrown silk and dyed silk.

Sewing silk in raw and dyed state, spun silk, from re-
fuse knubs and husks, exhibiting the material and its
stages in process, consisting of yarn, cops, and goods.

Manufactured goods:—Velvets, satins, moiré antiques,
glacé gros de Naples (figured and plain); levantines, serges,
vestings, saranets, Persians, ribbons, hat and railway car-
riage furniture.

Ladies' and gentlemen's black, coloured, plain, and
figured handkerchiefs, scarfs, shawls, &c. Gauze veils.

39 ADSHEAD, W. & Co., Macclesfield—Producers.

Silk dyed in the skein, and prepared for the use of the
manufacturer.

40 CRITCHLEY, BRINSLEY, & Co., Macclesfield—
Manufacturers.

Silk in the manufactured state.

Ladies' foulard dresses, aprons, neck-ties.

Gentlemen's cravats and boys' neck-handkerchiefs.—
Designs registered.

41 WARDLE, HENRY & THOMAS, & Co., Macclesfield—
Manufacturers.

Ladies' silk handkerchiefs, plain and checked, figured
and chiné.

Boys' cravats.

Gentlemen's pocket handkerchiefs and cravats.

Ladies' small silk shawls.

42 HADWEN & SONS, Kebroyd Mills, near Halifax.
Manufacturers.

Illustrations of the production of waste silk from the
eggs of the silk-worm. Cocoons in the bush; the cocoon
as left by the worm; the waste of the cocoon in the
brush. Specimens of raw material: waste silk in the

dressed and carded state; the same in the slubbing and thick roving, and in fine rovings. Single and double spun silk yarns.

43 STUBBS, POWNALL, *Leek*—Manufacturer.
Needle-worked silk buttons.

44 BROUGH, JOSHUA, JAMES, & Co., *Leek*—Manufacturers.
Sewing silks, raven and jet black.
Purse or netting silk.
Leger twist, in balls. Silk twist, in balls and reels.

45 HAMMERSLEY & BENTLEY, *Leek*—Manufacturers.
Twist of various colours, in balls and on reels, for tailors. Italian sewings, for tailors and milliners. Purse twist. Black silk twist, in hanks, for tailors.

46 WESTON & SON, *Leek*—Manufacturers.
Various buttons, including Florentine, brown Holland, real twist Italian, white cotton and worsted, netted silk, silk barrel, rich twist (needlework dome), rich twist, youths' dress silk, silk fancy vest, and ladies' silk dress.

47 DAVIDSON, JOHN, & Co., *Leek*—Manufacturers.
Raven, jet, and drab cloth sewing silks for tailors.
Jet, drab, and coloured silk twist.
Jet and coloured sewing silk for milliners. Stay silk.
Veil, vest, and shawl embroidering silk. Saddlers' silk.
Black, white, and coloured floss silk.
Tram, for figuring, embroidering, or weaving.
Boot-closing. Purse twist. Silk serge.

48 ALSOP, ROBINS, & Co., *Leek*—Manufacturers.
Black and coloured silk serges. Black silk handkerchiefs.
Black 20 handfacing, double plain, watered, and plain and watered.
Black Prussian bindings. Black and coloured galloons.
Black sewing silk, and black and coloured twist, in balls and reels, dyed by W. Hammersley & Co., *Leek*.
Coloured purse or netting silk.
Yellow weaving, or barber's twist.
Silk whip-lashes. Needlework buttons.

49 BRIDGETT, THOMAS, & Co., *Derby*—Manufacturers.
Specimens of sewing-silk for saddlers, bookbinders, staymakers, tailors, &c., netting or purse-twist, and plain sarsnet ribbon.

50 ALLEN & HOLMES, *Derby*—Manufacturers.
Black silk ribbons and braids. Algerines. Black satin trimmings. Silk warp, prepared for the manufacture of various fabrics.

51 SMITH, MARY, 3A *Abbey Street, Bethnal Green*—Designer and Manufacturer.
Chenille shawl, made of choice silk, and manufactured in a loom made for the purpose. Exhibited as a specimen of manufactured chenille, and as a useful article for wear and warmth.

52 GROSVENOR, WILLIAM, *Kilderminster*.
Manufacturer.
Silk brocade, brocatelle, and figured satin damasks, for upholstery.

53 PULLING, JAMES, 6 *Brudenell Place, New North Road*—Manufacturer.
Trains of crape tunics and tucks.
The Lady Peel mantle.
Train trimmings in graduated sets.
Elizabethans. Berthas.

54 WRIGHT, P. & R., *Edinburgh*—Designers and Manufacturers.
Figure of the Duke of Wellington on horseback, in silk damask.

56 WILSON, JOHN, 5 *Church Passage, Spital Square*—Manufacturer.
Mourning hat-band, manufactured of silk, woven circularly, and sufficiently elastic to fit over the hat.

57 BURKE, THOMAS HASWELL, 6 *Bull Head Court, Newgate Street*—Manufacturer.
Embossed silks, velvets, &c.: ladies' sashes and flounces; and trimmings for mantles, dresses, millinery, and parasols.
Model of the Exhibition Building, embossed, about four feet six inches long.
Victoria mounts for the decoration of drawings and prints.
Embossed lace papers, hand-screens, card-racks, folios, ornaments for dining-tables, and various other articles.

58 GREENSHIELDS, WALTER, *Whitburn, Lindlithgowshire*—Manufacturer.
Specimens of ornamental work, accomplished without the aid of a needle.

59 PENFOLD, O., 4 *Blackmoor Street, Clare Market*—Manufacturer.
Gauze diaphane for covering looking-glass and picture frames, &c.

60 EVANS, SAMUEL, *Wickswoth, Derbyshire*—Manufacturer.
Specimens of silk plush for vestings.

61 HOLDFORTH, J., & SON, *Leeds*—Spinners, Inventors and Importers.
Various specimens of the article known as silk waste Chinese, Italian, and British.
Specimens of single and double spun silk yarns, from the coarsest to the finest numbers, the finest having 428,400 yards to a pound (No. 510 cotton reel), and used to a great extent for the manufacture of a variety of goods.
Samples of silk yarn, dyed and finished, ready for the manufacturer. Spun by the exhibitors' patent process by which greater brilliancy and strength are said to be obtained, and a very near approach to net silk, for which it is substituted for a variety of purposes.

62 HARROP, TAYLOR, & PEARSON, *Piccadilly, Manchester*—Manufacturers.
Pink, white, sky, and maize gros de Naples for ladies' bonnets; exhibited for cheapness.
Black gros de Naples and ducapes, for ladies' dresses.
Black edged ducape, 22 inches tape edged armazim and black velour for hat-bands, scarfs, and clergymen's gowns.
Gros d'Ecosse, various mixtures, used for ladies' dresses, mantles, &c.

63 BOOTH & PIKE, 43 *Oldham Street, Manchester*—Manufacturers.
Imperial or carded plush for hats, bonnets, &c., in the various stages of manufacture: viz., 1st, grey, as it leave the loom; 2nd, as it appears after the nap has been raised partly by hand and partly by steam-power by means of teasels and cards; 3rd, the same with the nap shorn of a uniform length; 4th, black, as received from the dyer; and, 5th, when finished and ready for use in various colours.
Galloons, or bindings and bands with the buckle attached, ready for the hat.
Hat linings, of various qualities and descriptions, with specimens of the same in the piece.

64 HOULDSWORTH, JAMES, & Co., *Portland Street Mill, Manchester*—Designers and Manufacturers.
Specimens of Jacquard figured silk fabrics, suitable for furniture, consisting of silk tissue, brocades, brocatelles, &c.

[To the Chinese we owe the knowledge of the manufacture of silk; but its origin, even with them, is hid in remote antiquity. Silk was brought overland from China to Rome, within a century after Alexander had opened the passage to India. In the reign of Aurelian, A.D. 270, its price was so high, that a pound of silk was sold for a pound of gold, nearly equal to 50*l*. About a century later its purchase was within the reach of all classes at Rome; and in the reign of Justinian, A.D. 551, by the agency of two Nestorian monks, who brought the eggs of the silkworm from China, the manufacture of silk was introduced into Europe. Venice and Lyons afterwards took the lead in its European manufacture; and the revocation of the edict of Nantes brought the first silk weavers to Spitalfields in 1685.

Silk is still imported from China, and it excels that of every other country, in brilliancy and colour. Considerable quantities are also imported from France and Italy; the silk of the latter country being esteemed the superior. The silk manufacturers of England have successfully striven under many disadvantages (one of which has been the difficulty of raising the raw material at home), to cope with the continental manufacturers in the production of elegant fabrics, and they now produce some which rival, if they do not surpass, those of foreigners. Manchester, as an example, exhibits "*gros de Naples*" as good and as cheap as that of Lyons, and the establishment of our Schools of Design bids fair to secure our superiority in the taste and beauty of our patterns.

Of the various kinds of silk fabrics presented to our notice, we can only describe a few. Damask, which was formerly used for dresses, is now chiefly employed in furniture; it is a twilled fabric made in the same manner as linen damask, with flowers, birds, and other ornaments worked into its texture. Brocade is a fabric into which, originally, threads of gold and silver or a mixture of these were introduced to increase the richness and splendour of its appearance. This name, however, is applied to rich silk stuffs, as satins, taffetas, lutestrings, &c., adorned with flowers and figures. Satin is a glossy silk twill to which the soft and glistering appearance is given by rendering a great number of the threads of the warp visible in the process of weaving: instead of raising

each half of the warp alternately, only a fifth or an eighth part is raised, so that the face which is thus woven downwards, presents an even, close, and smooth surface. To improve its appearance, when taken out of the loom, it is rolled on heated cylinders which renders the face still more smooth, and imparts to it a more brilliant lustre. The smooth and plain fabrics, as lutestring, *gros de Naples*, Persian, *ducape*, levantine, *sarsenet*, &c., differ from each other chiefly in their thickness and quality. Some of these, however, are figured. Taffety is a fabric of a wavy lustre imparted by pressure and heat, with the application of an acidulous liquor which produces the effect called watering. Tabby and tabbunets are varieties of the latter. Armozeen is a thick plain silk, generally black; used for clerical and funeral purposes.

Velvet is distinguished by the soft pile on its surface, which is produced by the insertion of short pieces of silk thread doubled under the weft, and so crowded together as entirely to conceal the interlacings of the warp and weft. The loops of the thread are afterwards cut, and then they exhibit the appearance of a brush; the pile is produced by the separation of the threads, and the application of machinery to cut them smooth and even. The warp and pile of good velvet are both composed of organzine silk, which is composed of several threads of raw silk twisted or *thrown* together in the form of a rope; and its richness depends upon the relative numbers of its pile threads. Velvets are said to be of different degrees of richness, viz., of two, four, or six threads, according to the number of pile threads inserted between each of the dents of the reed. The velvets of Spitalfields may be safely compared with foreign velvets in fineness and strength, as well as in general appearance.

Ribbons, or, more properly, ribands, are chiefly made at Coventry, and have of late so much improved in manufacture, that our home producers can now vie with the foreign. They partake of the same varieties in general, as the larger silk fabrics; they are frequently ornamented with a pearl edge, which is formed by making some of the threads of the weft project beyond the rest. Clouding is an appearance given to ribbons in the dyeing.—R. W.]





SECT. III.



CLASS 14.

FLAX AND HEMP.

INTRODUCTION.

FLAX and Hemp formed the staple material for vegetable textile manufactures in the United Kingdom long prior to the development of the cotton trade. The application of cotton, in its present extensive degree, is altogether modern; and this material has already, in many instances, entirely, and in others in part, replaced flax and hemp, and the substitution is continually proceeding in fresh directions. For many purposes, however, cotton does not appear to offer itself as a probable substitute for the materials concerned in this Class. The remarkable difference in the conducting properties (for heat) possessed by cotton and flax alone seems to assign a separate use to them in textile manufacture, which, coupled with their different physical and mechanical properties, will probably always render their employment in textile fabrics distinct.

The Class comprehends the following Sub-Classes:—A. Flax-fibre, in its various conditions, as Steeped and Unsteeped, Heckled, &c.; B. Linen Yarn and Thread; C. Plain Linens of all widths, Bleached, Unbleached, and Dyed; D. Damasks, Diapers, Drills, and other Twilled Linens; E. Cambrics, Cambric and Linen Handkerchiefs, Lawns, &c.; F. Cordage of all kinds.

The position occupied by the objects in this Class in the Exhibition Building is near the Western Entrance, on the south side of the Nave, Ground Floor. The Areas devoted to their reception are L. and M. 6 to 8, and N. and O. 4 to 6. On the North Wall, also, in a recess near the flax machinery, in Class V., are placed specimens of heavy canvas, sail-cloth, &c., and in a part of the space occupied by Class XI., will also be found various manufactures belonging to the present Class.

A great variety of damasks of different kinds are exhibited. The design of several of these represents in a forcible manner the success with which the Jacquard principle is applied to the ornamentation of fabrics for ordinary use. The localities supplying these and similar articles are chiefly Belfast, Dunfermline, Barnsley, and Manchester. Some interesting collections of the materials used, and of its first stages of preparation for manufacture, are likewise shown. The most ordinary articles such as sacks, threads, fishing-nets, ropes, and twine, have all a place of interest and importance in this Class. The heavier descriptions of flax manufactures are supplied chiefly from Dundee, Hull, Greenock, and Arbroath. The machinery necessary to weave some of these productions, such as sail-canvas, sacking, &c., presents a forcible contrast by the size and power of its parts to the lighter and more elegant machines employed for weaving the fine cambrics used for pocket-handkerchiefs.

Specimens of articles manufactured from different kinds of flax and hemp will also attract notice, and illustrate the peculiar applicability of these sorts for different fabrics. *Jute*, a fibrous material of recent introduction from the East Indies, is becoming extensively employed, particularly for carpetings, sacking, bags, &c., in which a fine material is not necessary. The beautiful flax prepared at Courtrai, and adapted exclusively for the most delicate fabrics, is employed in the manufacture of many of the articles exhibited. British, Russian, China, and Manila hemp, enter into the composition of others.

In 1841, upwards of one million and a quarter cwts. of flax and tow were imported into England at a duty one penny a cwt., yielding consequently about 5,500*l.* to the revenue. The flax factories in the United Kingdom are of great size and importance, and employ a large number of operatives in immediate or indirect connexion with them. If it should become possible to obtain cheaply an adequate supply of flax of home production, and of the fit quality for the purposes of the spinner, the dependency of this country upon the East and America for cotton as a textile material would be greatly lessened, and an important field of commercial activity would be laid open at our own doors. But the properties of flax, and the tedious processes necessary for its preparation, have hitherto proved an obstacle to its more extensive employment. A variety of experiments on this subject are however in progress, the ultimate result of which can scarcely be foreseen; and it appears already to have been proved by actual trial that this fibre can, after preparation, be applied to the ordinary machinery of the cotton-mill, yarn having been spun up to moderate numbers from flax thus prepared. Until recently flax cultivation has scarcely been fairly attempted; but it seems probable that in a short time extensive, and it may be hoped successful, trials will be made to supply this country with a manufacturing material so intrinsically valuable.—R. E.

1 HOLDEN, JOHN, & Co., Belfast, Ireland—Designers and Manufacturers.

Sewed book muslin, jaconet and book frill collars; sewed book capes. Ladies' caps, tamboured. Infants' caps, sewed cambric, and sewed book. Infants' frock bodies. Fancy habits. Infants' robes. Chemisettes. Cambric and book insertion. Cambric and book edgings. Sewed book sleeves and flouncings. Sewed cambric flouncings. Linen cambric handkerchiefs. Polka jackets.

2 BROWNS, JOHN R. & WILLIAM, Banjor, County Down, Ireland—Manufacturers.

Lady's robe, and baby's robe, embroidered muslin.

3 DUFFERIN's, Lord, School, Belfast—Producer.

Embroidered handkerchiefs, worked by peasant girls.

4 PELLING, CHARLES, 81 Academy Street, Belfast, Ireland—Inventor and Manufacturer.

Ladies' embroidered muslin robe, designed by M. M'Kinsie, Belfast.

Irish cambric ornamented gentlemen's shirt fronts.

5 ANDREWS, MICHAEL, Royal Manufactory of Linen and Damask, Ardoyne, Belfast, Ireland—Manufacturer.

Table cloth of new pattern, to be presented to the Earl of Clarendon by the Royal Society for the promotion and improvement of the growth of flax in Ireland. The centre represents the star of the Order of the Garter, in a union garland of rose, shamrock and thistle, interspersed with flax, and surrounded by the jewels of the Order of the Bath and St. Patrick, with Irish harps in shamrock wreaths. At each end is a presentation piece from the Royal Flax Society, Belfast, 1851, on a group of shamrock and flax, surrounded by the Clarendon arms, incorporating the collar and jewel of the Order of St. Patrick, with the motto and jewel of the Order of the Garter. The border exhibits a rich collection of flowers, drawn from nature. The ground consists of four large amaryllids around each representation of the arms, with small sprigs of shamrock and flag intertwined, &c.

Table cloth of new pattern, designed by John Mackenzie, Government School of Design. The centre consists of a rustic stump and basket of rich flowers, resting on a group of flowers at the base, and supported by an Arum and a Strelitzia, surrounded by a light wreath of flowers, chiefly climbers, and a ground harmonizing in same style. The border represents a rich scroll, each compartment terminating with distinct flowers. The corners represent the rhododendron in flower, the end and side the centres of flowers. The margin represents the hearts-ease, on leaves of the same.

Table-cloth, extra double damask, with arms of Goldsmiths' Company of London for centre, flowers with sprigs filling, in a scroll and flower border.

Table-cloth, extra double damask, with arms of Baron Rothschild for centre, surrounded by various sprigs, and border of flowers.

Table-cloth, extra double damask, with arms of Mr. Wheble for centre, surrounded with sprigs, and encircled by two flowing scroll borders.

Table-cloth, extra double damask, being pattern of a rich table service of various lengths, manufactured for Her Majesty's 62nd Regiment of Foot, showing the number in a large star, surrounded by a flowing riband containing the names of the battles in which this regiment obtained honours, with sprigs, the whole enclosed by a border of oak and laurel intertwined.

Piece of extra double damask, containing twenty-four doyleys, being six different patterns and four doyleys of each pattern.

All in an unbleached state as they come from the loom.

6 BELL, THOMAS, & Co., Bellview, Lurgan, Belfast—Manufacturers.

Samples of cambric bordered handkerchiefs, clear lawn, and plain cambric.

7 RICHARDSON, SONS, & OWDEN, Belfast, Ireland—Manufacturers.

Double damask table-cloths, with border, roses, shamrocks, and thistles, Irish wolf-dog and harp; corner-piece, shield of oak leaves, flags, anchors, and a dove encircled in palm wreaths with olive branch; side range, try-scroll, Prince of Wales's feathers, in oak wreath; and centre range, a temple, British royal arms, vase of flowers, &c. Designed by William John Magee, Lisburne, Ireland.

Double damask cloth. Samples of Irish linens, ranging from a coarse quality to the finest; of light linens, ornamented for the export trade; and heavy linen, in the brown state.

8 FLETCHER, ALEXANDER, Glasgow—Manufacturer.

Various patent linen threads.

9 LEADBETTER, JOHN, & Co., Belfast, Ireland—Manufacturers.

Linen drill, brown, bleached, and dyed. Fancy drill, plain checks and stripes, all linen, and mixed. Linen creas, patillas, and hollandas, brown and dyed.

10 KIRK, WILLIAM, & SON, Annrade, near Keady, Ireland—Manufacturer.

Rough brown linen. Brown, natural drab, dyed drab, slate, and black linen hollandas. Bleached linen diapers; lining, family, and fronting linens; and unions.

11 BENNETT & ADAMS, Coleraine, Ireland—Manufacturers.

Fine linen.

12 ADAMS, JANE, Strabane, Ireland—Manufacturer.

Needle-work scarf, apron, collar, and cuffs, made of linen yarn, in imitation of lace.

13 CRAWFORD & LINDSAYS, 3 Laurence Lane, Cheapside—Manufacturers and Bleachers.

Specimens of white and brown linen sheeting; damask table linen, &c.

14 CARSON, R., Ramuldstown, Belfast—Manufacturer.

Woad, bleached, and unbleached linens.

15 PINKERTON, JAMES & ROBERT, Ballymoney, Ireland—Manufacturers.

Fine linens.

16 HENNING, JOHN, Cambray House, Waringstown, Banbridge, County Down, Ireland—Manufacturer.

Samples of handkerchiefs; linen cambric; "silken flax;" "golden flax;" Irish cambric hem-stitched; embroidered; and with printed borders.

Printed linen cambric dresses; and lawns, straw colour; shirt frontings; satin damasks, bleached; napkins; double satin damasks, grey warp, white weft, and slips; satin damask gold and white dessert cloths; gold and purple, and other coloured table covers.

Damask coronation cloth, manufactured in Waringstown, in 1717; sketch of the cloth, to show the pattern; piece of brown cambric.

Satin damasks, butterfly pattern, scroll border, Portland vase, scroll border and fancy centre.

Reed for weaving cambric, 5,000 "spits to the yard; manufactured by Marmaduke Carmichael, Lurgan.

Handkerchiefs from China grass.

Cambric loom; damask loom; machine for weaving damask, or other figured fabrics, on the Jacquard principle.

17 BROWN, JOHN, & SONS, Waringstown, Banbridge, Ireland—Manufacturers.

Double damask napkins and table cloths, various patterns. Unbleached damask.

18 SADLER, FENTON, & Co., Belfast, Ireland—Manufacturers.

Samples of Irish flax seed. 1. Flax plant, fully ripe. 2. Scutched, or the woody part removed. 3. Heckled, or prepared for spinning; and 4. Mill-spun and hand-spun yarn.

Specimens of strong medium, and light brown Irish linen; and various other kinds. Also fronting, medium, light, and slate linen. Linen and brown sheeting. Irish linen creases. Linen britannias. Estopillas. Linen silesias and platillas. White, brown, and slate linen drills.

19 **MC'CAT, THOMAS, Lismashanker, Dromore, Ireland—Manufacturer.**

Bleached linen, from hand-spun and mill-spun yarn. Brown linen-warp, mill-spun; weft, hand spun. Linen mosquito nettings, all mill-spun yarn.

20 **CLIBBORN, HILL, & Co., Banbridge, Ireland—Manufacturers and Bleachers.**

"Bird's-eye" diapers, manufactured from the best quality of linen yarn.

21 **RICHARDSON, J. & T., & Co., Springfield, Lurgan, Ireland—Manufacturers.**

Irish cambric handkerchiefs, plain, hem-stitched, printed, and wreathed.

22 **MALCOLM, JAMES, Lurgan, Ireland—Manufacturer.**

Linen cambric, clear lawn, and hem-stitched handkerchiefs. Shirt frontings. Lawns. Handkerchiefs of fine handspun yarn, 70 hanks to the pound.

23 **RICHARDSON & Co., Lisburn, Ireland—Manufacturers.**
Samples of Irish linen.

24 **CORRY, BLAIN, & Co., Belfast, Ireland—Designers and Manufacturers.**

New damask table-cloths. The ornaments are raised so as to have the appearance of being embossed, rather than woven. The designs are imitation of foliage and flowers; and scroll border, the centre a Medici vase, encircled with foliage and flowers. Specimens of double damask tray-cloths.

Specimens of steam-power loom manufacture; applied to damask table linen. Damask table-cloths, various designs. Samples of linen damask vestings.

Pencil sketch, intended for a design for a table-cloth. The border consists of rheum leaves, wild foliage, flowers, and grasses, blended together; the middle a number of groups of flowers, so arranged as to give a brief history (in the language of flowers) of Her Majesty the Queen, H.R.H. Prince Albert, and the Great Industrial Exhibition; the centre a large group, representing the principal articles of commerce.

25 **M'MURRAY, THOMAS, & Co., Dromore, County Down, Ireland—Manufacturers and Bleachers.**

Bleached and unbleached linen.

26 **KINNIS, W., Dunfermline, Scotland—Manufacturer.**
Damask table-cloth, made of mill-spun flax yarn; the pattern is a combination of plants, flowers, and ornaments in both border and centre, with flower-sprigs round the centre. Damask table-cloth, pattern the grape vine. Another in the Watteau style.

Damask table-cloth, with centre, a vase of fruit and ornamental, from which arises a vase of flowers; and border, various plants and flower-sprigs. Others in Gothic and German styles.

Damask table-cloth made of yarns produced by Messrs. Marshall & Co., flax-spinners, Leeds, from China grass, being a new application of this material, with pattern same as that of the first article. Another, also of China grass yarns with running pattern.

27 **BIRRELL, DAVID, Dunfermline, Scotland—Manufacturer.**

Table-cloth design—a medallion bust of Her Majesty the Queen, surrounded with Gothic ornament, and the badges of the orders of the Garter, the Thistle, and St. Patrick—made of fine Flemish flax yarn; of new fabric and twill, containing 290 threads upon the inch of cloth.

Table cloth design—group of flowers and birds, with border, made of fine flax yarn.

Table-cover design—emblem and motto of the Church of Scotland, the burning bush, "Nec tamen consume-batur." Made with blue silk on fine flax yarn. All manufactured by the exhibitor.

28 **HUNT, W., & Son, Dunfermline, Scotland—Manufacturers.**

Double-damask linen table-cloth, manufactured for the service of the Queen. Design, deer stalking and Highland trophies, with a view of Balmoral Castle in the centre. Linen and silk wefted show-cloth, of the same design.

Double-damask linen table-cloth; design, union centre, with scroll border. Linen and silk wefted show-cloth of the same design.

Three double-damask linen table-cloths; designs, aconitum centre and garland; fruit centre and lily border; and hydrangea garland.

Four double-damask linen table-napkins; designs, Balmoral Castle, &c.; aconitum centre, &c.; fruit centre and lily border; hydrangea garland.

29 **BEVERIDGE, E., Dunfermline, Scotland—Manufacturer.**
(Agent in London, W. MANVELL, 12 Bow Churchyard.)

Table cloths, bleached linen, brown and white linen, and extra satin, double and single damask, Gothic, arabesque, and other designs.

Dinner napkins and doyleys, bleached linen, and brown and white. Table cloths and dinner napkins, silk and linen. Tray tea napkins, bleached linen, single and double damask.

Nursery and towelling diapers, various qualities.

Stair carpeting and crumb or floor cloths, linen damask, and tapestry.

Table covers, coloured damask cotton, cotton and worsted mixed. Victoria covers, coloured cotton and wool damask. Table covers, merino (all wool), and coloured silk and wool, double damask. Table covers, three-coloured brocade, and coloured tapestry.

30 **SADLER, S., Ironmonger Lane, Cheapside—Producer.**
Specimens of fine linen and cambric.

31 **WILKS, J., 14 & 15 Bread Street, Cheapside—Producer.**
Specimens of linen.

32 **ROGERS & WROE, 134 Cheapside—Producers.**
Scotch embroidered handkerchief, sunk on French lawn.

34 **DEVAS, M. T., MINCHENER, & ROUTLEDGE, 24 Lawrence Lane—Proprietors.**

Group of damask table linen, exhibited for quality and cheapness.

35 **DEWAR & SONS, King's Arms Buildings, Wood Street—Proprietors.**

Silk and linen table cloth; in the centre, enclosed in the figure of a star, is Fame crowning Industry, the whole surrounded by a garland of flowers; in the corner of the border is the figure of Justice, encircled by a garland of flowers and ornamental scroll-work. In the centre of the border, within a garland of flowers, is the figure of Commerce, holding in one hand a palm branch (peace), and in the other two wreaths, to crown trade by land and sea, as exhibited on each side of the figure. The whole resting on a ground of ornamental scroll-work. Bleached linen table-cloth, the same pattern.

Silk and linen table-cloth, flower border, trees and stag in the centre; and side-cloth to correspond. Bleached linen table-cloth, same pattern. Silk and linen Communion napkin. Linen and silk and linen table-cloths.

Manufactured by William Kinnis, and designed by James Balfour, Dunfermline, Scotland.

36 **CARTER BROTHERS; CARTER, JOSEPH; JACKSON & MATTHEWMAN; FLETCHER, HENRY T.; HATTERSLEY, PARKINSON, & Co.; PIGOTT & NEWTON; and HAXWORTH & CARNLEY, Earnsley—Manufacturers.**

Bleached linen dowlasses and pillow linen. Yarn and piece bleached sheetings. Grey and bleached pudding-

cloths. Bleached butter and tea-cloths. Grey and bleached kitchen rubbers. Plain and checked glass-cloths. Oyster cloths. Twilled dusters.

Yarn bleached and blue ducks. Bleached military and checked fancy ducks. Black ducks and drills. Natural coloured and fancy blouse hollandas. Grey roller, half-bleached and full-bleached towellings. Black and drab shanking cloth. Pudding canvases. Horse bandages. Linen stripes and checks. Checked dusters and drills. Saddlers' checks. Purse canvas. White and grey cheese strainers. Screen cloths.

Loom and bleached medium huckabacks. Loom and bleached medical rubbers. Grey Baden Badens. "Electric" rubbers.

Tape and damask-bordered huckaback towels. Wimbourn towels. Table huckabacks.

Grey and bleached table diapers. Clouting, nursery, and towelling diapers. Grey and white, blue and white, and bleached pinafore diapers. Drabettes.

Grey and white and bleached damasks. Damask dinner napkins, tray cloths, and aprons. Stair diaper and damask carpets. Twilled stair carpets. Damask and twilled crumb cloths.

Grey and "cream" bed ticks. Blue and white bed ticks. Blue and white mattress stripes. Blind and marquee ticks. Crankies.

37 TEE, CHARLES, & SON, Barnsley—Designers and Manufacturers.

Bleached, natural coloured, and fancy linen drills. Dyed plain linen and silk and linen vestings. Fancy vesting fabrics, mixed material. Plain and fancy fabric for dresses. Bleached toilet-cover fabric. Linen saddle rug. Printed linen and cotton yarns.

38 WALTON & Co., Knaresborough—Manufacturers.

Bleached linen sheeting, woven in hand-loom, and of considerable width and fineness. Linen-duck sheeting. Original Knaresborough linen. Brown linen tick. Heavy water-twist cotton sheeting. Blue linen check. Linen huckaback for towels. Medical rubbers.—All made by hand-loom.

39 HIBBERT, THOMAS, Knaresborough—Manufacturer.

Linen diaper table-cloth. Pieces of table-napkins and pocket-handkerchiefs.—All made by hand-loom.

40 EMSHALL, GEORGE, Knaresborough—Manufacturer.

Linen-duck sheeting. Linen shirt without seam.

41 LEEMING, JAMES, Knaresborough—Manufacturer.

Linen for shirting. Blue and white ticking. Linen chemise, woven without seam.—All made by hand-loom.

42 WILFORD, JOHN, & SONS, Brompton, near Northallerton—Manufacturers.

Piece of bleached sheeting, made from China grass; it possesses lustre, strength, and durability. Specimens of white linen drills for military trousers; combining closeness and smoothness of surface with durability.

New fabrics.—"Commodore," piece of white linen drill, for naval and boating trousers; and "Wellington," piece of white linen drill for military trousers. A range of patterns of various qualities of brown and white linen drills.

43 PEGLER, CHARLES, Leeds—Manufacturer.

Double damask table-cloth, in the brown state, with the arms of the Earl of Harewood; double damask table-cloth, arms of the Royal Horse Guards; napkins; bordered linen sheets.

Communion cloth, design the Last Supper, and other appropriate emblems; double damask table-cloth, equestrian statue of the Duke of Wellington.

44 HAYWARD, R., & SONS, West Chinnock, and 93 Minorities, London—Manufacturers.

Canvas for ships' sails, well known as "Coker canvas." Twines, used for sewing sails.

45 Row, J., Creckern—Manufacturer.

Sail-cloth; and towelling, called medical rubbers; manufactured from flax grown in the immediate neighbourhood.

46 POOLE, JAMES & CHARLES, South Petherton—Manufacturers.

Canvas for ship sails, made from foreign flax, and from English flax. Canvas for yacht sails, made from English flax. Seaming twine, made from English flax.

47 WITHEY & SMITH, North Perrott, near Creckern, Somerset—Manufacturers.

Fancy and other twines of various colours, made of flax, hemp, and cotton, used for crochet knitting, netting, carpet and silk weaving, and a variety of other purposes.

48 FINLAYSON, BOUSFIELD, & Co., Glasgow and Johnston—Manufacturers.

Patent linen thread, common and satin finish, coloured both in black, dark blue, white-brown, and all fancy colours, in best and second quality, for tailoring purposes.

49 MORRISON & HURN, 25 Norton Folgate—Manufacturers.

Rope, line, and twine, of all sizes, and qualities, suited to every purpose.

Model marquee, flags, rick-cloth, horse clothing.

Suit of horse nets, sheep netting, hare and rabbit netting, portable bow net, drum net, casting net.

New portable fire escape.

Bed sacking, cocoa-fibre matting.

Snake, brush, double thrumb, and fancy bordered cocoa-fibre mats.

Corn, flour, and malt sacks.

Waterproof cloth for railway trucks, waggons, carts, drills, &c. All patented.

50 HOUGHTON, SARAH, Ashford—Manufacturer.

Superfine double damask table-cloths and napkins, Kent arms centre, and basket centre.

50A SCHWANN, FREDERICK, Huddersfield and Leeds—Proprietor.

Samples of Nos. 70, 80, and 100 leas line-yarn, A quality, made from French flax.

Samples of Nos. 25, 30, 40, and 50 leas line-yarn, D quality, from Dutch flax.

Samples of Nos. 18, 25, 35, 45, and 70 leas line-yarn, E quality, also from Dutch flax.

Samples of Nos. 10, 20, 30, 50, and 70 leas line-yarn, G quality, from Russian flax.

Samples of Nos. 20, 25, 40, 50, 60, 70, and 80 leas line-yarn, J quality, from Russian flax.

Samples of Nos. 30 and 35 leas line-yarn, K quality, from Russian flax.

Samples of Nos. 25, 30, and 45 leas line-flax, slack four-thread, second quality, from Russian flax.

Bunch containing samples of Nos. 20, 30, 40, and 50 leas line-yarn, slack twist, third quality, made from Russian flax.

Bunch containing samples of Nos. 18, 30, 50, and 70 tow, O quality, from French flax; and of Nos. 25 and 35, from Dutch flax.

51 TITLEY, TATHAM, & WALKER, Leeds—Manufacturers.

Patent linen sewing threads. Superior patent satin finish, or polished sewing threads.

Shoe threads, closing and stitching flaxes or lines.

52 GRIMSHAW & WILKINSON, 13 Bridge End, Leeds—Manufacturers.

Oiled cloths and sack covers.

53 HOLDSWORTH & Co., Leeds—Manufacturers.

Linen thread, patent soft satin-finish, and old finish; linen shoe thread, grey and finished.

E. E. H., Scorrer, near Truro—Manufacturer.

Ropes, for various purposes, manufactured from Russian hemp, and from white Manilla hemp, stronger and stronger than Russian hemp rope. d rope, for maritime purposes, manufactured from Polish hemp. Rope, for reef-points in manufactured from Manilla hemp, and from up. Round rope, for standing-rigging for ships, factured from Russian hemp. Cable-laid ropes jacks, &c.

Boils of double and single wave tube fuzes, for fire under water, blasting rocks, firing magazines, of safety-fuzes, being made solely of twine, and for quality.

JOHN, Market Street, Oxford—Manufacturer.
bell-ropes.

AMES, HENRY, Abingdon—Manufacturer and Designer.

chequered, rush, and Manilla matting, for halls, &c.; each piece varied. Cocoa-nut and Manilla any cocoa-nut matting; superior jute carpeting.

DEHART, NINTAN, & Sons, Kirkcaldy, Scotland
—Manufacturers.

ether-bed tick, made entirely from flax and d. Feather-bed tick, of the same kind, but 1.

d diaper bed-room towels, made from the best; fringed and plain.

huckaback, used principally for bath and rough towels, manufactured from double yarns.

ive, and six-bushel bags, generally used for our, grain, potatoes, &c.; manufactured ena tow: the names of the owners are printed on a oil paint, by a printing-press made for the

LMOUTH LOCAL COMMITTEE—Producers.
nets.

ISS, ROBERT, Kirkcaldy, Scotland—Manufacturer.
fine four-treadle bed-tick, made entirely of flax taken from stock.

REY, ROBERT, Mary Hill, Glasgow, Kirkcaldy, Forfar, and Brechin—Manufacturer.
samples of huck, dowlas, ticks, loom sheeting, ick and twill dusters, blue linen, &c.

JAMESON & Co., Hull—Importers and Manufacturers.

and flax from Russia, and jute from the East the raw and undressed state as imported, and stages of manufacture. Yarn and canvas from grey bleached, including ship's sailcloth, from flax and hemp in the "bolt," wool sheeting g, sacking, tarpauling, bed-sacking, railway overing, &c., of various qualities.

HALL, JOHN, & Co., Hull, Yorkshire—Manufacturers.

of patent made cordage, from Baltic hemp, aut made cordage from Manilla hemp; tarred.

TYKE & COOPERS, Hull—Manufacturers.

cordage for the use of sailing and steam vessels, d collieries, the whale fisheries, and deep-sea Manufactured by steam and manual labour.

DE DUNDEE LOCAL COMMITTEE, Scotland—Producers.

or yarn bleached, 21 pieces of 25, 27, and reguelas; 10 of 30 inch dowlas; 6 of 25 and ilitary duck; 2 of 27 inch coletas; 1 of 30 men of 35 inch sheetings. 5 pieces of White Russia

sheeting, 40 inch; 2 pieces of cleared, or grass bleached 25 inch creguelas; 5 of 30 inch creas; 1 of 30 inch pramante. 21 pieces of brown, cream, and white 20 inch canvas padding:—manufactured by James Smeeton and Son, Dundee.

12 pieces of 27 inch bleached duck. 10 pieces of 40 inch cream Russia sheetings. 4 pieces of 40 inch striped and checked Russia sheetings.—manufactured by J. and A. Laing, Dundee.

Twelve pieces of light and heavy loom dowlas, 29 and 30 inch. 4 pieces of heavy loom sheeting, 36 and 90 inch. 16 pieces of 3-4th heavy loom and bleached huckaback. 10 pieces of bleached imperial ducks and military drills, 27 inch. 12 pieces of bleached dowlas, 30 and 36 inch. 5 pieces of bleached pillow linen, 40 inch. 5 pieces of 6-4ths, 10-4ths, 11-4ths and 12-4ths bleached sheetings. 3 pieces of bleached Russia diaper, 22 inch; 4 pieces of bird's eye diaper, 26 inch; 6 pieces of clouting diaper, 4-4ths; 13 pieces of dice and harness diaper, 8-4ths. 4 pieces of brown and bleached window linen, 42 inch:—manufactured by Alexander Lawson, King's Kettle.

Six pieces of common bleached canvas, Nos. 1 and 6. 6 pieces 24 inch tailor's padding canvas:—manufactured by John Mori, Dundee.

Five pieces of 40, 45, 54, and 60 inch Hessian, or packing canvas. 10 pieces 51, 54, and 60 inch striped bedding. 1 piece of 30 inch bed tick. 5 pieces of 24, 27, and 36 inch bed sacking. 1 piece of 24 inch padding canvas. manufactured by Cox Brothers, Dundee.

Three pieces of 27 inch flour sacking. 4 pieces of 27 inch coal sacking. 4 pieces of 27 and 29 inch corn sacking. 1 piece of 26 inch striped jute sacking. 6 pieces of navy canvas, Nos. 1 and 6:—manufactured by Alexander Easson, Dundee.

Two pieces of 36 inch jute carpeting. 1 piece of 36 inch matting, made from Manilla fibre. 1 piece of 36 inch matting, made from coir and Manilla fibre:—manufactured by James Neish, Dundee.

Eight pieces of Osnabergs, manufactured by Don Brothers and Co., Dundee.

Ten pieces of 4-4th brown sheeting:—manufactured by W. and John Don and Co., Forfar.

Three pieces of heavy floor-cloth, 2 to 9 yards in width:—manufactured by Thomas Bell, Dundee.

Two pieces of 2-4ths jute stair carpeting. 4 pieces of jute stair carpeting. 1 piece of 30 inch tarpauling tow-warp, jute warp. 1 piece of 27 inch jute bed sacking. 2 pieces of 42 inch cotton, or coffee bagging. 1 piece of 34 inch double hop pocketing.—manufactured by Alexander J. Warden, Dundee.

Four pieces of 31 inch strong bed tick. 2 pieces of 40 and 45 inch twilled sheeting—manufactured by James Brown, Dundee.

Fifty pieces of striped and checked fancy linens, with a variety of patterns of each:—manufactured by John Leadbetter and Co., Dundee.

64 SOPER, RICHARD S., 4 Blossom Street, Norton Folgate
—Manufacturer.

Specimens of lines, usually called patent lines, of various sizes, for hanging window sashes, shutters, blinds, lamps, &c.

Specimens of skipping ropes.

65 SMITH, J., East Greenwich—Manufacturer.

Specimens of ropes, lines, twines, &c., manufactured by machinery from Russia, Manilla, and Italian hemp; Irish, Baltic, and Egyptian flax and tow.

66 ULLATHORNES & LONGSTAFFS, 12 Gate Street, Lincoln's Inn Fields—Manufacturers

Shoemakers', saddlers', and harness makers' threads.

Heel balls for shoemakers' use.

67 MOORE, WILLIAM FINE, Crunkbourne, Douglas, Isle of Man—Manufacturer.

Canvas for ships' sails, manufactured from long Irish flax, woven by power, without starch or dressing. Twines.

canvas for the same purpose, and manufactured from the same material. Twine for sewing canvas for ships' sails.

68 HUDDART, Sir JOSEPH, & Co., Limehouse—Manufacturers.

Cordage and sailcloth—Tarted cordage, from Baltic hemp. Untarted cordage—Manilla, Bombay, India Sunn, Italian, Hungarian, Columbia River, new. Power-loom-woven sailcloth, for the Indian navy, on the Dutch plan; for the British navy; and for the Merchant navy.

69 TULL, SAMUEL, 153 Fenchurch Street, and Globe Fields, Mile End Road—Manufacturer.

Specimens of twine, ropes, fishing lines, nets, &c., of different materials and qualities.

70 WALL, E. & T., Banbury—Manufacturers.

Hand-spun laid cords and twines, made from Polish Rhine hemp Petersburg cut clean hemp. Polish Rhine and Petersburg hems, dressed and undressed. Twines made from Rya flax yarns and tow yarns Whipcords made from flax yarns. Sash and juck lines, made from Indian spun hemp, clothes lines from Manilla hemp; horse-hair and Manilla horse-hair clothes-lines Horses' halters from Petersburg hemp. Bed sackings. Horse-hair cloth. Fancy door-mats, made from India jute hemp. Curled horse-hair.

71 HARFORD, GEORGE, Gateshead—Inventor.

Specimen of an improved sail-cloth, manufactured by Milvain and Harford.

72 GUNBOCK ROPEWORK COMPANY, Greenock—Manufacturers. (SADLER, SAMUEL, Ironmonger Lane, Cheapside, Agent.)

Sail-cloth, extra best quality; bleached, second quality; boiled, third quality.

Tarted cordage, various inches; four stranded, hawser, and boltrope. Manilla cordage, various inches; wormed, hawser, and tarted.

73 EDWARDS, J.; EWENS, JOHN B., & Co; GUNDRY, JOSEPH, & Co.; HOUNSELL, JOSEPH; HOUNSELL, WM., & Co.; PYMOR COMPANY; RENDALL & COOMBS; STEPHENS, J. P., & Co.; TUCKER, THOS., & Co.; WHETHAM, S., & Sons, Local Committee, Bridport. Producers.

Specimens of the staple manufacture of Bridport, consisting of twines, canvas, webs, nets, lines, shoe-thread, tarpauling, sacks, &c.

CASE A.

Hemp and Flax in various stages of preparation.

CASE B.—Twines.

No. 1. Three-thread fishing long reel, 1 rand, 4½ lbs. per dozen rand.

2 to 4. Three-thread fishing short reel, 1 rand each, 6, 9, and 12 lbs. per dozen, made from Friesland flax.

5 to 7. Three-thread fishing short reel, 1 rand each, 6, 9, and 12 lbs. per dozen, made from water-rotted Dorset flax.

8 to 9. Three-thread fishing short reel, 1 rand each, 6, 9, and 12 lbs. per dozen, made from dew-rotted Dorset flax.

10 to 16. Three-thread fishing short reel, 1 rand each, 9, 12, 15, 18, 24, 30, and 36 lbs. per dozen.

17. Three-thread seal, No. 1, 1 skein.

18. Three-thread trawl, ½ rand, 48 lb. per dozen.

19. Three-thread salmon trawl, ½ rand, 72 lbs. per dozen.

20. Three-thread turtle, 1 skein, 72 lbs. per dozen.

21 to 25. Three-thread cod-net, 1 rand each, 4½, 9, 12, 15, and 18 lbs. per dozen.

26 to 32. Three-thread salmon-net, 1 rand each, 24, 30, 36, 40, 48, 60, and 80 lbs. per dozen.

33. Two-thread fishing short reel, 1 rand, 6 lbs. per dozen.

34 to 41. Two-thread porlick and mackerel, 1 rand each, 7, 9, 10, 11, 12, 14, 16, and 18 lbs. per dozen.

42 to 51. Two-thread cod-net, 1 rand each, 9, 10, 11, 15, 16, 18, 19, 20, 21, and 24 lbs. per dozen.

52. Nine-thread lobster-net, 1 rand, 84 lbs. per dozen.

53. Two-thread and three-thread shop. 54. Dutch.

55. Three-thread packing.

56. Fine three-thread bleached gilling.

CASE C.—Canvas.

1. No. 1. Bleached double warp, 24 inches wide.

2. No. 1. Bleached double warp, 18 inches wide.

3. No. 1. Half bleached warp, 34 inches wide.

4. No. 1. Double warp, 24 inches wide, as used in Her Majesty's Navy.

5. No. 1. Single warp, full bleached.

6. No. 6. Double warp, full bleached.

CASE D.—Wets.

Nos. 1 and 2. Brown extra stout, machine web, 12 and 4 inches.

3. Striped extra stout, Artillery girth, 4 inches.

4. Brown gullet web, 1½ inches.

5. Superfine brown straining web, 3 inches.

6 and 7. Fancy linen girth web, 3½ and 2 inches.

8. Striped tray web, 2½ inches.

9. White boot web, 1½ inches.

10. White linen collar or bradoon web, 1½ inches.

11. Diaper web, 2½ inches.

12. Chair web, 1½ inches.

13. Brown extra stout, Army girth, 5 inches.

14. Saddle-seat web, 8½ inches.

15, 16, 17, 18, 19. Fancy linen girth web, 3½, 3½, 3½, 2½ and 2½ inches.

20. White linen roller web, 4 inches.

21 and 22. Fancy linen roller web, 4 inches.

23, 24, 25, 26. Fancy linen roller web, 4 inches.

27. Fancy linen roller web, 5½ inches.

28. White woollen brace web, 2½ inches.

29. Fancy woollen girth web, 2½ inches.

30 and 31. Fancy woollen roller web, 5½ inches.

CASE E.—Fishing-Nets.

1. Herring-drift, 18 feet deep, 11 fathoms long, ½ inch mesh, roped.

2. Mackerel-drift, 27 feet deep, 19 fathoms long, ½ inch mesh, roped.

3. Herring-drift used on English coast.

4. Mackerel-drift used on English coast.

CASE F.—Lines.

1. Deep sea, 1 coil. 18. Chalk, 1 line.

2. Hand lead, 1 line. 19. White sash cord, 1 line.

3 to 6. Hambro', 1 line line. 20. Brown sash cord, 1 line.

each, 9, 12, 15, and 18 strands. 21 & 22. Whip-cord, various sizes.

7. Bank, 1 line. 23. Norsels, 1 lb., used for tying nets to head-ropes.

8. Cod, 1 line. 24. Two-thread martine, 1 slip.

9. Northsea cod, 1 line. 25. Three-thread hous- ing, 1 slip.

10. Log, 1 line, 18 strands. 26. Mackerel, 1 line.

11 to 12. St Peter's cod, 1 line each, 15 and 18 threads. 27. Long sed, 1 line.

13. Long shore, 1 line.

14. Fallock, 1 line.

15. Squid, orjigger, 1 line.

16 to 18. Snoods, 1 line each.

CASE G.—Shoe-threads and Seaming-twines.

1. No. 1, common. 22. Yellow closing.

2. No. 2, common. 23. No. 8 fitting.

3. Best common. 24. White closing.

4. Fine. These 24 articles are threads.

5. Fine flax. 25 & 26. 6 and 9 three-thread seaming twine, from Dorset dew-ripe flax.

6. Superfine flax. 27 & 28. 6 and 9 three-thread seaming twine, from Dorset water-ripe flax.

7. Extra superfine flax.

8. Brown closing.

9 to 16. Varieties of half-bleached.

17 & 18. Green.

19 to 21. Yellow.

CASE H.—*Fishing-nets.*

- | | |
|------------------------------|----------------------------|
| 1. Unbleached cast-net. | 4. Bleached herring-drift. |
| 2. Bleached cast-net. | |
| 3. Bleached sprat net-drift. | |

CASE I.—*Fishing-nets.*

- | | |
|------------------------|-------------------------|
| 1. Piece of Lance-net. | 6. Piece of mackerel. |
| 2. Piece of Capeling. | 7. Cod-seine, 3 inches. |
| 3. Piece of Dungarvon. | 8. Cod-seine, 4 inches. |
| 4. Piece of pilchard. | 9. Cod-seine, 5 inches. |
| 5. Piece of herring. | |

CASE K.—*Fishing-nets.*

1. A mackerel drift-net, as used in Sussex, fitted for sea.
2. A pilchard drift-net, as used in Cornwall, fitted for sea.

CASE L.—*Bags, Sacking, &c.*

1. Patent waterproof covering.
2. Five-bushel seamed bag.
3. Three-bushel round bag (without seam).
4. Four-bushel round bag (without seam).
5. Three-bushel seamed (heavy 6 lb.) bag.
6. Three-bushel round bag (without seam).
7. Five-feet bed-sacking.
8. Piece 4 feet 4 inches sacking-cloth.
9. Five-feet patent sacking.
10. Wool sheet.
11. Four-bushel round bag (without seam).

[These articles though little interesting in themselves, are yet important in a social point of view, and represent in some degree the interests of our country, as a maritime nation, which are connected with this manufacture.]

Bridport may be considered the especial seat of the hemp and flax manufacture, a branch of industry which has flourished there for centuries; in fact, so early was that ancient borough celebrated for it, that in an Act of Parliament, 21 Hen. VIII., it was set forth, that the inhabitants "had, time out of mind, used to make within the town for the most part all the great cables, ropes, and other tackling for the Royal Navy, and the most part of other ships within this realm."

It is difficult to estimate the number of hands employed in the staple manufacture in the town and the surrounding district, the majority of the population being engaged in one or other of its branches; the number may be roughly estimated at from 7000 to 8000.]

74 HOLLOWAY, THOMAS JOHN, *Salisbury*—Manufacturer.
Hemp and flax twines.

74A BREMNER, JOHN, *Kirkcaldy, Scotland*—Manufacturer.

Pieces of sail-cloth, made entirely of Baltic flax yarn, the warp being of three-ply and the weft four-ply. Sail-cloth made upon this principle is stronger than canvas made in the usual way, particularly if the yarns are made from Irish flax.

75 DIXON & LONGSTAFF, *Stockton-on-Tees*—Manufacturers.

Sail-cloth, made from Baltic long flax; hand-loom woven.

76 HARRIS, JONATHAN, & SONS, *Cockermouth*—Manufacturers.

Dyed and bleached linen threads.

. The fourteen following are placed on the North Wall, near the Flax Machinery in Class 5.

77 BEALE, BROWN T., *Andover Ford, Gloucestershire*—Manufacturer.

Sacking, tubing, tarpaulin of hemp and flax; flaxen great coats, &c.

78 PLUMMER, R., *Newcastle*—Manufacturer.
Specimens of canvas.

79 FRASER, D., *Arbroath, Scotland*—Manufacturer.

Navy bleached and boiled canvas. Improved brown canvas flax warps. Common brown tow, single brown tow, and common bleached canvas.

80 DUNCAN, D., & Co., *Arbroath, Scotland*—Manufacturers.
Hemp sail-cloth.

81 RENNY, SONS, & Co., *Arbroath, Scotland*—Manufacturers.

Navy sail-cloth made for British Government. Improved sail-cloth, made for the British merchant navy.

82 GORDON, G. & A., *Arbroath, Scotland*—Manufacturers.

Specimens of the various qualities of line and tow-yarn manufactured in Arbroath; dry-spun line-yarn, No. 1 to 50, and tow-yarn, No. 1 to 25. Sail-twine.

83 SALMOND, W., *Arbroath, Scotland*—Manufacturer.

Bleached unstarched sail-cloth; mill-washed long flax sail-cloth. Tarpaulin, unstarched, 28-inch brown. Single best tow vitrie. Best brown tow double canvas.

84 GARLAND, W., *Arbroath, Scotland*—Manufacturer.

Hop-pocketing. Floor-cloth. Nine-feet flax canvas.

85 RAMSAY & SMART, *Arbroath, Scotland*—Manufacturers.

Sacking. Brown canvas; brown single canvas.

86 ANDERSON, C., *Arbroath, Scotland*—Manufacturer.

Imperial and Russia ducks. Ticklenburgs. Russia sheetings, and padding canvas. Double canvas, single canvas, and waterproof cloth for railway covers. Hemp tarpaulings.

87 NICOL, A., & Co., *Arbroath, Scotland*—Manufacturers.

Towelling. Sheetting, bleached and brown. Osnaburg. Mixed-hemp sacking. Flour sacks. Rye-grass sacks. Coffee-bags. Shop-twine; hemp-twine.

88 CURR & Co., *Arbroath, Scotland*—Manufacturers.

Brown flax sheeting; brown tow sheeting. Loom dowlas; loom sheeting. Ticklenburgs. Ducks.

89 DAGNALL, CHARLES, & Co., *Little Chelsea*—Manufacturers.

Variety of mats and matting.

Samples of fine coir yarn from Cochín; of coarse coir yarn, Bombay; of coir yarn, Ceylon; of coir junk and fibre, from Cochín, Bombay, and Ceylon.

Specimens of silk grass, lute, or paut hemp, from Calcutta; and of Manila hemp.

[Coir yarn is obtained from the husk of the cocoa nut, and "jute" from the stems of *Corchorus olitoricus*.—J. L.]

90 EDGINGTON, THOS. F., 45 *Botolph Lane*—Manufacturer.

Specimen of composition cloth, made up from long flax, and dressed with a solution which renders it perfectly waterproof; used for railway luggage, truck covers, &c.

. The five following are placed with Class 11.

91 SADLER, SAMUEL, 24 *Ironmonger Lane*—Importer.

Bleached light linen, in cartoon boxes. Bleached silenias and platillas. Estopillas, bretanas, and creas legitimas. Thick linen handkerchiefs. All exhibited for style.

and cheapness, as well as adaptation for the South American, Mexican, and West Indian markets.

Bleached medium linens, extra strong linens, fronting linens, and extra strong shirtings. Exhibited for quality and fitness for the home trade.

92 COULSON, JAMES, & Co., Lisburn, Ireland—Manufacturers.

Fine damask table-cloth, with the armorial bearings of His Grace the Duke of Bedford. The collar and stars of the Order of the Garter, &c., appropriately interwoven.

Fine damask table-cloth, made for His Grace the Duke of Sutherland.

Fine damask table-cloth, appropriately ornamented with the improved insertions, having the various royal insignia, with collars and stars of the different orders; made for Her Majesty.

Fine damask sideboard table-cloth, appropriately ornamented; made for Her Majesty.

Fine damask table-cloths, prepared for the Earl of Derby, and for the 1st regiment of Life Guards; the 2nd Life Guards; the 18th Lancers; the Scots Fusilier Guards; and the 57th Regiment, with badges, &c.

(Placed partly with Class 11, and partly with Class 14.)

[The antiquity and celebrity of the "fine linen" of Egypt, clearly points to that country, as the place where its manufacture originated. Specimens of this article wrapped about the Egyptian mummies, and supposed to be at least 3000 years old, are remarkable for fineness of texture. Linen was introduced into England, by the Flemings in 1253, as a substitute for the woollen shirting previously worn. Although Ireland now excels in this manufacture, it was not introduced into that country till 1634.

One kind of linen is still called Holland, from the place where it was first manufactured; this article having been largely imported for domestic use, before our home manufacture had arrived at such perfection as to take its place. Unbleached linen is called brown Holland, and is used for various articles of clothing and upholstery; silenia is a species of fine brown holland, glazed. Dowlae, is a strong kind of Irish linen, for shirting. Drill, is a stout twill for trousers. Damask, is a twilled fabric, similar to that made of silk, and much used for table-cloths; Dunfermline, in Scotland, and Ardoyne and Lisburn, in Ireland, are celebrated for the beauty and excellence of their manufactures in this article.

Brown damask is the same article unbleached, and being deemed stronger in this state, is used as more economical. Diapers are damasks of smaller size and simpler patterns. There are also union damasks and diapers, made of linen and cotton combined.

Sheeting linens are of various names and qualities, as Irish, Lancashire, and Scotch; also Russia, Yorkshire, and Barnaley; besides there are unions and imitations of these, of which the Russia is the strongest and coarsest. Huckaback, is a species of very coarse diaper used for towelling. Tick and union tick are well known articles for upholstery purposes. Canvas is usually made of hemp, but a finer sort is made from flax. Coarse canvas is used for sail cloth, tents, and coverings of various kinds. The finest article made in linen, is called cambric or Batiste, from Cambray, where it was first made, or Batiste, its first maker. French cambric is still much esteemed in the shape of handkerchiefs, though it is often equalled by our home manufacture. Scotch cambric is a cotton fabric, made in imitation of French cambric. Lawn is a species of very fine linen, approaching cambric in texture.—R. W.]

93 COULSON, WILLIAM, Lisburn, Ireland—Designer and Manufacturer.

Fine damask table-cloths and napkins.

(Placed partly with Class 11, and partly with Class 14.)

95 CAPPER, JOHN, & SON, 69 Gracechurch Street—Part Inventors and Makers.

Table cover, of linen damask, unbleached. The same, bleached, for use; manufactured in Scotland.

Registered striped or banded towelling. Invented by the exhibitors.

Newark huckaback towelling: the "Wellington," of yarn twice twisted in the web, preserving its sharpness during wear; the "Russia," and the "Newark," with recent improvements in fabric.

Huckaback towellings, bleached, of various qualities, manufactured in England.

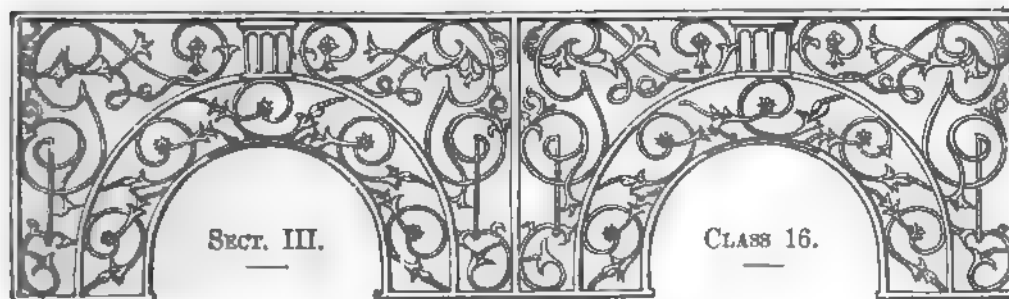
Sheetings for household use; manufactured in Ireland.

96 M'LEODMAN, JOHN, & Co, 3 Barge Yard, Bucklersbury—Manufacturers.

Bleached sail canvas, made from Irish flax, and by hand-loom.

For Class 15—MIXED FABRICS, INCLUDING SHAWLS—See Classes 12 & 15, page 185.





LEATHER, SADDLERY AND HARNESS, SKINS, FUR, AND HAIR.

INTRODUCTION.

THE present Class includes a variety of manufacturing processes relating to the commercial preparation of animal substances in the form of leather, skins, fur, hair, and feathers. Until within a recent period, experience rather than science has directed the labours of manufacturers in their operations upon these substances. And at present the rules taught by experience are in many cases still pursued in practice, with, however, such modifications as an intelligent comprehension of the operation of the chemical and other philosophical laws put into force in the processes would suggest.

The following Sub-Classes are recognised in this Class:—A. Leather, as rough and tanned, curried, enamelled, dyed—Oil Leather, as Buckskin, Doeskin, &c.—White and Alum Leather; Sheep and Skin Rugs, Parchment, and Vellum; B. Saddlery and Harness; C. Miscellaneous; D. Skins and Furs of all descriptions for personal and domestic use; E. Feathers, as those of the Ostrich, Marabout, &c.; F. Hair, ornamentally and usefully applied.

The position occupied in the Building is at the North side of the Western Main Avenue. The Areas included are G. H. I. and J., from 10 to 14. In addition, specimens are suspended from the Galleries, and in the centre of the Avenue is a case containing examples of the most rare and costly furs.

The localities in which the manufactures concerned in this Class are carried on, and from whence articles for exhibition have chiefly been derived, are Bermondsey, where the preparation of leather has been successfully conducted during a very long period, Hull, Swansea, Bristol, Cork, Liverpool, Edinburgh, and Falmouth.

The manufacture of leather has been estimated as only fourth in importance among the national manufactures of Great Britain. A large amount of capital is employed in its production, and the number of artisans and others directly supported by this branch of industry has been taken to amount to nearly a quarter of a million. The total annual value of the leather manufactures is computed at about fourteen millions sterling. It appears probable that in the mere article of boots and shoes, upwards of seven millions sterling are annually expended by the inhabitants of this country. If it be considered that rather more than half the leather produced is thus applied, the remainder is employed in the production of harness, saddlery, gloves, and the multifarious purposes for which leather is applicable. Of late chemistry has been studied attentively by those dependent upon this branch of industry, and successful results have ensued. A variety of patent processes exist by which the enormous amount of time involved in tanning on the old system is abridged to a surprising extent. With some specimens of leather it has not been unusual to devote eighteen months or upwards to their combination with the native principles of the bark. A few weeks are sufficient, under several of the new systems, to effect the same object. But it is stated that the leather produced rapidly, differs from that produced by a slower process of combination in its durability and solidity. And it is considered by some that time is an essential element in the manufacture, and that it cannot be advantageously shortened to any considerable extent. Leather is unquestionably a chemical compound, and this renders it probable that a slow and gradual process of combination between the gelatine of the skin, and the tannin acid of the bark, may produce a leather, to some extent, of different properties to that formed by a quicker operation. A very large amount of leather is, however, manufactured by the rapid process, from which it may be concluded that the product possesses great commercial value. A great variety of leathers in all conditions and states of manufacture is exhibited, with instructive series illustrating the peculiarities of different methods of manufacture, according to the difference of the purposes for which the prepared skin is to be afterwards applied.

An extensive and interesting collection of furs is exhibited. Probably the opportunity has never before presented itself for a complete study of this class of manufacture. Furs of the most rare description, devoted only to the use of monarchs, are among these specimens. To the naturalist desirous of ascertaining the genera and species yielding the furs of commerce, a subject on which much conflicting opinion exists, these objects, which are fully and correctly described in the Catalogue of this class, will be highly interesting and instructive. Feathers and hair are also represented by various interesting objects, possessing their peculiar merits and attraction. The number of exhibitors in this class is considerable, but since it includes boots and shoes, and other articles of personal and domestic use, in addition to saddlery, &c., the number of persons actually appearing in the capacity of manufacturers is to be distinguished from the proprietors. And as is the common rule, the class of producers or manufacturers bears only a small proportion to that of proprietors, or, in the commercial sense, vendors of manufactured articles.—R. E.

1 BEVINGTONS & SONS, *Nechinger Mill, Bermondsey*—Manufacturers.

Goat, sheep, seal, kid, and lamb skins, in the manufactured state.

Goat, seal, sheep, and calf skins manufactured into morocco, roans, skivers, and enamelled leather, for furniture, bookbinding, and shoe leather.

Kid, lamb, Cape sheep, and calf skins (alum leather), manufactured for gloves, shoes, and shoe binding.

Specimens of leather, with varieties in tanning and leather-dressing.

[Leather, such as that used for boots and shoes, is strictly a chemical product. The skins of a variety of animals are employed in the preparation of this article of universal use. The preparation of most varieties of leather consists essentially in the formation of a chemical compound, of the gelatine of the skin, and of a chemical principle called tannin, contained in the liquid used. Alum leather differs from ordinary leather in its properties and composition.—R. E.]

2 SQUIRE, THOMAS, *Latchford, Warrington*—Manufacturer.

Specimens of sole leather, tanned in Cheshire, made from hides, the produce of Buenos Ayres in South America, tanned with oak bark, the produce of Belgium, and a very small proportion of valonia, from Smyrna—26 weeks in process.

Sole leather, tanned without bark, made from hides, the produce of the United Kingdom; tanned with equal proportions of divi divi from South America, gambier from the East Indies, and valonia from Smyrna—16 weeks in process.

3 LUPTON, JOHN, *Chapel Lane, Bradford*—Manufacturer.

Specimens of comented leather strapping, used for driving-belts in weaving and spinning.

4 BUSE, NICHOLAS, *Orford Street, Swansea*—Manufacturer.

Improved calf-skins for the upper-leather of boots. Manufactured by a new process.

5 NICHOLLS, H., *5 Stafford Street, Bond Street, and 4 and 5 Birchin Lane, City*—Inventor and Manufacturer.

Waterproof tanned leather, skins (of English and Cape sheep), for sporting articles, shooting gaiters, trousers, &c. Black buckskin leather of permanent dye, suitable for trousers and other articles of dress.

Specimens of paste for cleaning white leather trousers, &c.

White buckskin hunting breeches.

Cleaning balls of various colours.

Improved composition for rendering the soles of boots and shoes waterproof and durable, and the upper leathers soft.

A new waistcoat in leather and cloth.

6 HARTLEY, ELIZABETH, *Low Bridge, Knaresborough*—Designer, Inventor, and Manufacturer.

Hearth-rug. Boa and muff. Carriage-bonnet and rug. Pair of cuffs.—All made from English lamb and sheep-skin.

7 ROBINSON, J., *Waterside, Knaresborough*—Manufacturer.

Carriage-rugs of different colours. Hearth-rug. Boas and muffs. Carriage and wool-slippers. Table-mat.—All made from English and foreign sheepskin.

8 HILL, G., *Knaresborough*—Manufacturer.

Rugs for carriages, carriage-slippers, and tea-urn mats.

9 CLAPHAM, JOHN, *Knaresborough*—Manufacturer.

Hearth-rug. Rugs in sundry colours, for door-mats and carriages. Foot-muffs, for carriage use. Travelling

shoes and boots, and slippers for domestic use. Muff. Boa. Victorine. Tea-urn mat.—All made from sheep-skin.

10 DEED, J. S., *Little Newport Street, Leicester Square*—Manufacturer.

Specimens of leather.

Dyed sheep and lamb-skin wool rugs, or mats.

Wool rug, made from sheep and lamb-skins, representing the globe, Britannia, peace, and plenty, lion and lamb, and doves with olive branches. Motto—"The earth is the Lord's and the fulness thereof."

11 WILSON, WALKER, & Co., *Leeds*—Manufacturers.

Coloured sheep-leather skivers, for bookbinders, hatters, &c., coloured roans, for furniture and boots; roller leather, for silk and cotton spinning; chamois or wash leather.

Coloured calf and morocco, hard-grained, for book-binding.

12 BENSON, C., *11 Waterloo Street, Leeds*—Manufacturer.

Hair-bag for extracting oil from linseed, &c.

13 HOGARTY BROTHERS, *Cork, Ireland*—Manufacturers.

Boot fronts and legs, kip butts, roans, shoe mid-dlings; black-grained calf for buttoned boots; calf-skins, waxed and russet, and tanned in sumac.

14 WINSOR, GEORGE, & SON, *Great Russell Street, Bermondsey*—Manufacturers.

Coloured wool rugs. Rugs, fancy and bordered. Hearth-rugs, fancy bordered, and white. Skins for cavalry, white and black. Skins japanned for socks. Skins for ladies' boas. French dog and lamb skins, for lining gloves, shoes, &c.; and carriage and foot muffs.

15 RHEAM, E., *Hull*—Manufacturer.

Specimens of boot and shoe leathers, of French and English calf-skin. Horse-hide from Spanish America, tanned and curried in England.

16 HOLMES, THOMAS, *Anlaby Road, Hull*—Importer and Manufacturer.

Specimens of tanned hide from the neck and back of a full-grown walrus, or sea-horse; also, from a young one, and from a cub.

Polishing-wheels covered with the same.

Heads of male and female walrus or sea-horse, taken by Captain Gravid at the Davis' Straits fisheries, 1850.

17 STOCKIL, WILLIAM, *33 Long Lane, Southwark*—Manufacturer.

Wellington boot fronts and grafts, waterproof.

18 EVANS, THOMAS, & SON, *10 Silver Street, Wood Street*.

Parchment and chamois leather.

Fancy parchment direction labels.

19 GLOVER, J. & T., *7 Wood Street, Cheapside*—Inventors and Manufacturers.

Specimens of oil leather, from buck, doe, calf, sheep, and lamb skins prepared on an improved principle.

Specimens of gloves manufactured from leather prepared by the new process; and from Irish kid skins.

Improved button for gloves, shirts, wearing apparel, &c., which can be permanently attached without perforation. Improved opening for gloves.

[Leather dressed with oil, instead of by the process in which tanning combines with the gelatine of the skin, differs in many of its properties from leather prepared by tanning. Oil is generally made to penetrate the skins by "fulling" them after sprinkling the surface with oil. The oil enters into a permanent combination with the

skin, and the leather becomes soft and pliant. Ordinary wash-leather is an illustration of this mode of preparing skins for use.—R. E.]

20 HEMSWORTH & LINLEY, 30 West Smithfield—Manufacturers.

Boot fronts and half fronts, from English calf skins; and from foreign calf skins, tanned abroad, but curried and blocked in England.

Cordovan hides, from South American horse hides.

[The enormous herds of horses congregated at times on the plains of South America have been noticed in striking terms by Baron Humboldt. During the inundations of which these plains are periodically subject, vast numbers of horses perish—the victims of the crocodiles or the waters. They are also the prey of the Indian hunters, and their hides form an important part of the export trade of several South American ports. These hides are in high repute in Great Britain; and in 1841, the quantity imported amounted to 394,526 cwt.—R. E.]

21 BRINDLEY, T., Paradise Street, Finsbury—Leather reticules, dressing case, &c.

22 TOMLIN, WILLIAM, Canal Bridge, Old Kent Road—Inventor and Manufacturer.

Superior description of parchment, nearly resembling drawing vellum.

23 BYAM, ELIZA, Bazaar, Soho Square.

Compound stationery case, in highly ornamented morocco. Novel in its form, being a model of a part of the Great Exhibition building.

A portable case, containing conveniences for travelling, in writing, working, dressing, and refreshment cases; it can be affixed to the inside of a carriage, and form an escritoire.

Lady's carriage companion. Another adapted for visiting and railroad travelling.

24 LEVER, J. & J., 13 Sise Lane—Manufacturers.

Writing, drawing, and binding vellum. Drum and tambourine heads. Writing and binding parchment.

25 WOOD, WILLIAM & SAMUEL, 32 Bow Street—Manufacturers.

Calf skin in its natural state, with the hair on, simply dried; the same tanned in oak bark, prepared for the currier; the same of various thicknesses, curried for boots and shoes; and the same variously dressed as morocco, &c.; also for boots and shoes.

27 LENTY, JAMES THOMAS, 12 Market Street, Manchester—Inventor and Manufacturer.

Portmanteau for travelling, with improved frame, without straps or buckles on the outside.

28 INBON, CHARLES, 11 Smithson St., York St., Hulme, near Manchester—Designer and Manufacturer.

Improved portmanteau, constructed so that all the divisions are thrown open at one time, to facilitate packing, and the removal of any article without having to unpack, and to prevent rain or water getting in the inside, by making the staff to shut close all round.

29 FINNAGAN, J., Manchester—Manufacturer. Travelling trunk.

30 JONES, WILLIAM D., High Street, Shrewsbury—Designer and Manufacturer.

Improved patent shot-belt—the "Royal Albert"—ornamented in relief, by hand labour.

Specimens of other articles, manufactured in leather, &c.

31 SMITH, WILLIAM HENRY, & SON, 136 Strand—Manufacturers.

Despatch boxes of various sizes and descriptions.

Travelling and dressing cases.

Writing, blotting, and card cases, &c.

32 GEORGE, CLEMENT, 102 Dean Street, Soho—Importer and Manufacturer.

Morocco and Russia leather, prepared for the use of upholsterers, coachmakers, bookbinders; also for dressing and other fancy case makers, boot and shoe makers, &c.

33 LAST, JOSEPH, 38 Haymarket—Inventor and Manufacturer.

Registered wardrobe portmanteau, with five compartments.

Knapsack for pedestrians, containing an extra pocket on the top.

Improved bag for clothes, linen, boots, &c.

34 EAST & SON, 214 Bermondsey Street, Southwark—Inventors and Manufacturers.

Patent velvet-napped, embossed, coloured leather. Embossed by Messrs. Customs and Co., 51 Bunhill Row, London.

35 ALLIN, WILLIAM, 126 Drummond Street, Euston Square—Inventor.

Pair of bellows, the sides being made of wood instead of leather.

36 ALLEN, JOHN MICHAEL, 37 Wardour Street, Soho—Manufacturer.

Homœopathic medicine cases. Tooth-powder box, to prevent the escape of the powder.

37 MOTTE, AUGUSTUS, 16 Southwark Bridge Road—Inventor and Manufacturer.

Patent waterproof leather portmanteau, cut and made in one piece, and without a stitch.

38 LAST, SAMUEL, 256 Oxford Street—Inventor and Manufacturer.

Registered railway portmanteau, for the use of travellers; divided into four compartments.

39 EVERETT & Co., 51 Fetter Lane—Manufacturers.

Blacking. Varnish for dress boots. Waterproof varnish for boots, harness, &c.

40 JAMES, J., 102 Oxford Street—Manufacturer.

Registered railway trunk, which contains a collapsible hat or bonnet case, a leather pocket, sliding division, and tray. Patent wardrobe portfolio.

41 JUDGE, CHARLES, 6 Sion Place, East Street, Walworth—Designer and Manufacturer.

Leather buttons, each consisting of one piece of leather, for boots, shoes, gaiters, coats, and clothing in general.

42 WOODMAN, WILLIAM, 13 Three Colt Court, Worship St., Finsbury—Manufacturer.

Leather backgammon table.

43 HARROWS, G., 38 Old Bond Street—Manufacturer.

Ladies' improved waterproof travelling chest.

46 MAIBEN, CHARLES, North Cottage, Vicar's Hill, Lewisham—Inventor.

Saddle on an improved principle of fixing and relieving the flaps and pannel by hand. It is convenient for travelling, or for shifting after a heavy saturation: the bearings are free, and the use of nails has been avoided. A favourite-seated saddle can be supplied with additional flaps and panel.

47 READ, JAMES BIRD, Penryn, Cornwall—Manufacturer.

A shaved hide, for making best bridle reins; tanned, not curried.

A rough tanned cow-hide, the produce of Cornwall, for making saddle-skirts and stirrup-leathers.

Specimen to show the quality and kind of leather used in Cornwall, for the purpose of gearing the buckets of pumping engines with from 60 to 90-inch cylinders.

48 CLARK, CYRUS & JAMES, Street, near Glastonbury, Somersetshire—Inventors and Manufacturers.

Model of the rural factory, a portion of it containing a variety of shoes, &c.

Urn-rugs, flower-stands, muffs, cuffs, and victorines, made from English lamb-skin.

Caps made from British slinks, or mort lambs.

Varieties of socks for shoes, of cork and gutta percha covered with lamb-skin.

Ladies' carriage boot, of lamb-skin inside and out.

Gentlemen's brown wool-lined slippers. Ladies' slippers, of lamb-skin inside and out.

Foot muff, with hot-water case under.

Patent elongating gutta percha goloshes, with improvements; put on or off without touching with the hand; light, elastic and firm.

Registered shoes, which answer the purpose of boots, without fastening; elastic, and easy in walking.

Sample of leather gaiters, and housemaids' and men's gloves.

Angola goat-skin, English sheep and lamb-skin, and slink lamb or mort, in the raw state.

Angola hearth-rug, dyed in one piece: the pattern containing eight colours without joining; exhibited for the ingenuity of the pattern.

Pure white Angola hearth-rug.

Hearth-rug, with centre pattern, of lamb-skin.

Crimson Angola skin, exhibited for its size and depth of colour. Golden crimson stair and door-rugs.

Orange and pink Angola carriage rugs.

Yellow, blue, green, lavender, fawn and brown Angola toilet rug.

Crimson sheep-skin, exhibited for its size, and deep colour.

Brown door, gig, and carriage-rugs.

Varieties of carriage or window-rugs, with ornamented centre. Bedroom rugs, of various patterns.

Tanned mop, or mop-head.

49 ROOD, G., & Co., Boltens-borough, near Glastonbury, Somerset—Designers and Manufacturers.

Hearth, carriage, and toilet rugs, with designs; manufactured from sheep-skin and Angola goat.

White, crimson, and pink Angola rugs, for carriages, doors, recesses, &c.

White, brown, crimson, green, and blue sheep-rugs, for the same purposes. Carriage foot-muff.

Sheep and Angola goat-skins, in the raw state.

50 COOPER, MATTHEW, 25 Swingate, York—Designer, Inventor, and Manufacturer.

Improved side saddle, with pilch of Berlin wool work (from the establishment of Mr. Jancowski, York).

Military saddle, with pilch also of Berlin wool work.

Improved light hunting and racing saddle.

Somerset saddle, with skirt similar to a regular hunting saddle.

51 SOUTHEY, GEORGE WILLIAM, & Co., 16 Little Queen St., Lincoln's Inn Fields—Manufacturers.

Seal-skins and hides for the use of coachmakers, harness-makers, and accoutrement-makers.

Calf-skins for the use of accoutrement-makers and boot-makers.

Hog-skins and hides for the use of saddlers.

Hides for straps for machinery and pipe-hose.

Hippopotamus hides for the use of mechanical engineers.

52 MAXWELL & Co., 161 Piccadilly—Manufacturers.

Glass case, containing socket spurs (military regulation and others), and spring spur-sockets, with specimens showing their several stages of manufacture.

53 LUTWICHE & GEORGE, Skinner Street, Snow Hill—Manufacturers.

Goat-skins, manufactured in England, for the use of bookbinders, shoemakers, upholders, coachmakers, &c. English sheep-skins.

54 MARLOW, JAMES, Walsall—Manufacturer.

Steel carriage and riding bits; with new designs of ornamental character.

Spenser's patent metallic saddles.

Harness, with registered ornamental mountings.

Stair balustrade in malleable cast iron, possessing the strength of wrought iron.

55 COX, SAMUEL, Walsall—Inventor and Manufacturer.

Newly invented Albert stirrup and stirrup leather, and improved draw-mouth clipper-bit. The stirrup is always in a position to meet the foot, and can be put on or taken off, without the use of the buckle.

Registered draw-mouth, clipper-bit which may be used either with or without curb. Provisionally registered.

56 BANTON, EDWARD, Walsall—Inventor.

Patent enamelled waterproof horse harness, requiring no blacking.

Patent Hackney riding-bit, with moveable mouth. Hackney bridle, round head and reins.

Hunting breast-plate. Hunting-bits, mounted with heads and reins.

57 HAWKINS, JOHN, Stafford Street, Walsall—Manufacturer, Inventor, &c.

Registered carriage and hackney bits, upon an improved principle.

Registered Chifney bit, used for either riding or driving, with "double mouth."

Steel stirrup-irons upon an improved principle, and ladies' slippers.

58 BRACE, HENRY, Walsall—Manufacturer.

Bits, stirrups, and spurs, for the South American markets.

59 PIM, JAMES E., Mount Mellick, Queen's County, Ireland—Manufacturer.

Snaffles. Snake's-head bit. Plain riding bit. Palham stirrup irons.

60 HUDSON, SAMUEL, Dublin—Inventor, Designer, and Manufacturer.

A side-saddle with projecting "burrs" in the forepart of the tree, to prevent the saddle from shifting to the near side and galling the horse, or slipping forward; it allows the front part of the saddle to be an inch lower than usual, enabling the rider to sit in a horizontal position. The safe, flap, and skirt are all in one piece, and covered with hog-skin. The design of the ornamental work on the heads and safe—the rose, shamrock, and thistle. The stirrup is a recent improvement made by the exhibitor; it opens with a spring, and disengages the rider's foot in case of a fall.

Hunting saddle with elastic seat, on a new principle: invented by the exhibitor. The webs are attached to a strong arch of round steel near the pommel, and so constructed as to bear violent usage without injury, giving additional strength to the tree; the action of the spring is not more than one-eighth of an inch, which is found to be sufficient to produce the requisite degree of elasticity.

Plain hunting saddle—exhibited for general fitting.

Light form saddle with steel-plated tree.

KNAN, WILLIAM, 29 Dawson Street, Dublin—

Manufacturer.

full-chased, silver-mounted, and brass-mounted
harness; set of silver-mounted gig or cab harness.
lady's side-saddle, with fans and leaping-head.
haft to gentlemen's hunting and steeple-chase

and single saddles for children.

K, G., 69 Dame Street, Dublin—Manufacturer.

anteas and camp furniture.

LAMBERT & SON, Bermondsey New Road—

Manufacturers.

gton boot-fronts and half boot-fronts; grain and
lf-skins; cordovan hides and jockey legs.

FORD, W. & G., Birmingham, and Houndsditch,

London—Designers and Manufacturers.

sons of whip manufacture and ornamental mount

sons of registered whip-sockets, or holders.

sons of saddlery, including a new design for a
idle and bit.

OWN, T., & SON, 7 Moat Row, Birmingham—

Manufacturers.

sons of cut back-head saddle-tree, with whale-
ings, galvanized plates, spring bars, and copper
prevent corroding; and various kinds of saddle-
d in England, East Indies, &c., of improved
ions.

, ARCHIBALD REED, 151 Strand—Designer and

Manufacturer.

red Cleveland and East India hunting saddles;
idle, with extra crutch.

Victoria bridle and stirrup.

brougham harness, with improved shaft and
a.

LEMORE, WILLIAM, 31 Holloway Head, Birmingham

—Designer and Manufacturer.

gig harness of new designs.

stent gentleman's saddle, with elastic seat.

idered lady's saddle, with same improvement.

saddles and bridles.

'mouthing rein for disciplining the mouths of
horses.

ouches, cigar cases, dram bottles, and sandwich

KAN, THOMAS GEORGE, Lilley Hoo Farm, Offley,

near Hitchin, Herts—Inventor.

ed patent general fitting saddle, expanding with
n of the horse's muscles, intended to take off
sure, and spread the weight.

ed patent self-acting elastic spring roller, for

ed patent harness, with spring trace and tug,
i and crupper. The spring trace assists the

taking off dead-pressure from the horses'

ed patent safety rein, to enable the driver to
plete control.

neral fitting saddle is constructed to expand with
n of the muscles, and spread the pressure over
er a greater surface; also to protect the withers
g wrung—a fault frequently occasioned by the
e common saddle. It is objected to the common
at in the event of a horse stumbling, the shoul-
forced up into the gullet of the pommel, and the
e is often broken; but even when this is not the
confinement of the shoulders invariably prevents
action, and consequently the horse loses all
recovering itself.

ring bar is intended to relieve the horse of much
nd at the same time afford ease and comfort to

the rider, as well as protection from the injuries that so
often happen on the pommel and cantle of the saddle;
these, in the new invention, being soft and elastic. The
spring bar is applicable to side saddles.

The self-acting elastic roller obviates the injury result-
ing from the use of the present tight roller, which, not
being elastic, when buckled round a young animal, es-
sentially retards and injures the formation of the chest,
while it confines and weakens the action of the lungs.

**69 GARNETT, WILLIAM, Tarporley, Cheshire—Inventor
and Designer.**

A saddle without seams, that is, having seat, skirt, and
flap in one piece. Exhibited for lightness and cheapness.
On the near side of the saddle is attached a patent spring
bar, so constructed as to release the rider if thrown from
his horse. On the off-side there is a swing bar, intended
as an improvement upon the patent spring bar.

70 VICK, RICHARD, Gloucester—Inventor.

Improved registered harness hames—giving ease and
facility of draught, by raising or lowering the shifting
tugs as required.

71 MUSSELWHITE, THOMAS, Devizes—Inventor.

Patent elastic collar for horses, formed by the combi-
nation of iron, cork, horse-hair, &c.

Improved elastic collar for horses, to work without
hames.

72 WEIR, JOHN, Dumfries—Inventor and Manufacturer.

A riding-saddle with elastic seat, the buckskin seat and
flap covers being all of a piece.

Neck collar, designed to answer the double use of a
separate collar and harness. The draught being fixed in
the roll at the proper part, will prevent the neck of the
horse being injured by the shifting of the harness.

Portmanteau containing hat-case, drawers, and pockets
for papers, letters, &c., with separate places for articles
of dress, umbrella, &c., all under one lock and key.

**73 MELLER, CHRISTIAN C., 15 Riding House Lane,
Langham Place—Designer and Manufacturer.**

An enamelled leather travelling-bag, with improved
fittings inside, secret spring fastenings, and metal knobs to
bottom to prevent wear.

74 RAMSEY, W., Hull—Inventor and Manufacturer.

Registered elastic-seated saddle.

**75 CLARK, W., Mill Hill, Leeds—Designer and
Manufacturer.**

A quilted summerset saddle; the work upon the seat
representing St. George and the dragon; on the flaps,
Britannia, surrounded with roses, thistles, and shamrocks;
on the skirts, the Prince of Wales's feathers.

76 THOMAS, CHARLES, Stratford-on-Avon—Manufacturer.

Registered flexible saddle, with metal cantle, yielding
to very slight pressure. It is so constructed as to pro-
mote the circulation of air between the seat of the saddle
and the horse's back, contributing to the comfort of the
rider, and preventing the galling of the horse.

**77 CAISTOR, A. B., 7 Baker Street, Portman Square—
Designer and Manufacturer.**

Hussar saddle, with holsters and furniture.

Hunting saddle.

**78 BLACKWELL, S. & R., 259 Oxford Street—
Inventors and Manufacturers.**

A cab or phaeton harness, with gilt mountings, chased
with emblems of Great Britain and Ireland; the orna-
ments on saddle, bridle, &c., are the collar, star, and
badge of the Order of the Garter. The whole made of
black patent leather.

Improved fetlock leg, and speedy cut boots, to prevent

horses being lamed by cutting; made of elastic vulcanised India-rubber web and leather.

Eye-blinds, for singeing, bleeding, &c.
Patterns of improvements in saddlery.

79 PASSMORE, WILLIAM, 27 Little Windmill Street, Golden Sq.—Designer and Manufacturer.
Single-horse harness, with improved hames and furniture.

80 ATKINSON & ELDRID, 185 Regent Street—Manufacturers and Proprietors.
Hunting whips, of various patterns, with silver mountings. Ladies' and gentlemen's riding whips, with gold and silver mountings.
Gig, four-horse, and tandem driving whips, of various kinds.
Registered ladies' parasol driving and riding whips.
Walking sticks.
Gold and silver-mounted walking and riding canes.
Drinking bottles and flasks.
Hunting and tandem horns, dog whistles, and other sporting articles.

81 MARTIN, W. H., 64 Burlington Arcade—Inventor and Manufacturer.
Parasol riding and driving whips.
Ladies' and gentlemen's driving, riding, and hunting-whips.
Riding-cane, dress cane, and walking-stick, made from the rhinoceros horn.
Specimen of the Wanghee cane.
New combination—a walking-stick, whip-stick, or umbrella-stick, containing long cylindrical bottle and wine-glass, and receptacle for biscuits or compressed meat, intended for railway travellers and others. Invented by Francis Whishaw, Esq.

82 SHIPLEY, J. G., 181 Regent Street—Inventor.
Large full quilted saddle with improved stirrup leather. Provisionally registered.

83 SKINNER, AMBROSE, Camberwell Green—Inventor and Manufacturer.
Air-filled horse collar, intended to prevent wrung or galled shoulders, and jibbing.

84 HICKS, HENRY, 52 Davies Street, Berkeley Square—Inventor and Manufacturer.
Lady's saddle, exhibiting the application of an elastic support for the left leg of the rider. Provisionally registered.

85 GREEN, ROBERT, 8 Edward's Street, Portman Square—Manufacturer.
Ladies' saddle, constructed on an horizontal tree, on an improved principle. Bridles.
Somerset and hog-skin hunting saddles.
Set of single horse harness, and horse clothing.

86 WHITE, J. C., 29 Liverpool St., City, and 185 Regent St.—Inventor and Manufacturer.
Set of pair-horse carriage silver-mounted harness, with improved registered tugs. These tugs are intended to supersede the use of the large tug buckles, and are lighter in appearance. The improvement consists in their being straight tubes, into which the trace passes, and is secured by a bolt passing through, which can be taken up and down and the trace easily adjusted; the trace having a straight pull from the bolt, is not liable to meet with the unsightly curve or bend which causes it to crack and break.
Set of single, or brougham harness, silver mounted, with improved registered tugs. The improvement in the single harness is the shaft tugs, which secure the shafts and prevent the shaking or jolting of the vehicle, without the necessity of wrapping the belly-band round the shafts.

Set of light pony harness, silver mounted, with improvements.

Part of a set of tandem harness, with improved bars, silver mounted, with the registered parts attached.

87 BOWMAR, C. B., Leicester—Inventor and Manufacturer.
Ladies' and children's victorines, riding boas, and mantilla polkas, made of lambakin cured, with wool attached. Jenny Lind's mantilla and muff attached, imitation of squirrel. Ladies' and children's cuffs. Brighton round and curly boa. Round ruff; children's ruff. Muff.
Ladies' and men's fleecy patent leather socks.
Lapland wool rugs, coloured and white.
Children's frame-worked coats, edged with wool.

88 TISDALE, EDMUND, 34 Broad Street, Golden Square—Manufacturer.
Somerset hunting saddle-tree, in the first stage of manufacture; the same, with a set back-head, in a finished state, adapted for high-withered horses, &c.
Side saddle-tree, with a leaping head, for safety to the rider.

89 LANGDON, WILLIAM, jun., 9 Duke St., Manchester Sq.—Designer and Manufacturer.
Light phaeton harness, bearing the coronet and initial of H.R.H. Prince Albert, made throughout of patent leather, and stitched with white silk; with silver-plated buckles, &c.

90 BLYTHE, ROBERT, 4 Park Lane—Manufacturer.
Lady's saddle, with horizontal and elastic seat, new in style and design.
Hunting or park saddle, with improved elastic seat.
Harness pad, with end screws removed.

91 PENNY, J., 37 Union Street, Middlesex Hospital—Manufacturer.
Improved design for harness mounting.
State pony bridle for H.R.H. Albert Edward, Prince of Wales, designed by W. H. Rogers; the leather-work by W. Langdon, 9 Duke Street, Manchester-square.
Specimens of harness mountings.
Cabinet drawer handles, metal gilt.
Portrait of H.R.H. Prince Albert, embossed by hand from sheet silver.
Heraldic and ornamental skewers.
Proof from a new style of gutta percha mould, Landseer's favourites. "Tam O'Shanter," "The Wolf and the Lamb" (Mulready), and "The Blind Fiddler," embossed by hand, from sheet copper.
Similar pictures in metal chasing.

92 SWAINE & ADENEY, 185 Piccadilly—Manufacturers.
Racing whip, mounted in silver gilt. This whip is represented in the annexed cut. The design is emblematic of the Exhibition, and representative of the four quarters of the globe.
Riding whip, mounted with gold, set with brilliants and rubies.
Ladies' riding whips, with fan or sun-shade attached, of new construction; also with parasols.
Chowrie riding whips, with horse-hair plumes, especially adapted for India or other parts where insects trouble horse and rider.
Riding whips of various patterns and devices.
Driving whips. Canes of various kinds.
Registered universal whip-socket.
Hancock's patent flexible-back horse and other brushes.
Improved horse-cloth, allowing a free escape of the moist heat of the body, which is retained by a woollen blanket; and also preventing the breaking out into a cold sweat, common to horses after being ridden or driven hard.



Messrs. Swaine and Adeney's Racing Whip.

WELL, CHARLES, 34 Wymore Street—Manufacturer.
Improved lady's saddle. A lady's saddle, with new
s, on an improved principle. A dress single har-
ness designs for harness furniture.

BYWATER, WITHAM M., 99 Piccadilly—
Designer and Manufacturer.
The horse brougham harness, with patent silvered
runt, and rosettes.
Improved Russian cavalry and other bridles.

MORIARTY, DANIEL, 34 Berwick Street, Oxford
Street—Manufacturer.
The harness, silver mountings.
The horse harness, lined throughout, silver plated
man silver. A single-horse harness, lined through-
out brass-mountings, bits, and breeching, complete.

CUFF, R., 18 Cockspur Street—Designer and
Manufacturer.
The velvet saddle, riding bridle, and harness,
with ornaments. Hunting and other saddles and

OLEGRAVE, F. E., Round Hill House, Brighton.
The saddle, made by Bartley, of Old Quebec Street. It
is with a patent saddle-girth spring.

WILSON, T., & SON, 18 & 19 Vere St., Oxford Street—
Manufacturers.
The safety side-saddle, by which a release from the
is ensured in case of a fall.

STLAND, WILLIAM, 199 Sloane Street, Chelsea—
Manufacturer.
The saddle, of new design, with moveable leaping
sometimes called third crutch.
The improved gentleman's spring-saddle.

100 PEARL, JAMES, Old Kent Road—Manufacturer.
Harness, with bridle-fronts, and rosettes of satin and
painted ribbon, whalebone, patent leather, and velvet.
Painted canvas and patent leather for harness fronts.
Riding-bridle and harness bridle-fronts.

101 CANAVAN, ATMOND, 7 Wyndham St., Bryanstone Sq.—
Proprietor.
Two saddles, made by Robert Gibson & Co., Coventry
Street, one with the exhibitor's registered safety panel;
the other with Reed's patent girth regulator.
Five brushes for cleaning all kinds of metals, made of
elastic buff leather, manufactured by Mr. Kent, brush ma-
nufacturer, Marlborough Street.

102 CLARKSON, I. C.—Manufacturer.
Harness straps, &c., manufactured by machinery.

103 STOKER, JOSEPH, 49 Old Street, St. Luke's—
Inventor and Manufacturer.
Lady's saddle, with revolving heads for riding on either
side, with increased facility for dismounting, so as to
prevent the dress becoming entangled in the heads; also
adapted to horses of different sizes.
Improved pack-saddle for overland conveyance of lug-
gage by horses or mules.

104 MACKIE & SON, Maidenhead, Berks, and Beaconsfield,
Bucks—Inventors and Manufacturers.
Horse collar, for heavy draught, especially up hills with
bad roads; applicable for artillery.
Set of improved pony harness.

106 HUGHES, ROBT., 52 Clifton Street, Finsbury Square—
Manufacturer.
Heraldic mountings for harness in brass, plate, and
solid brass gilt.

107 EARNSHAW, HENRY, 91 Wimpole St.—Manufacturer.
Blue Morocco bridle. Victoria bridle. Plain hunting
bridle. Round and flat bridles. Hunting breastplate.
Round pair-horse carriage reins. Registered dumb
jockey, on an improved principle.

111 KIRKBY, W., Caistor, Lincolnshire—Inventor.
Ladies' side saddle of superior workmanship.

112 BOOTH, JOHN PETER, South Quay, or Union Quay,
Cork, Ireland—Inventor and Manufacturer.
Victorine, boa, and muff, made of the Irish turkey
side feather.
Victorine, made of the Irish turkey wing feathers;
useful for trimming and ornamental articles of dress, &c.

114 HOOK, J., 66 New Bond Street—Manufacturer.
Ladies' riding boots. The Wellington, with rand fore-
part and turnover heel, and chased spurs of new design.
Patent elastic boots, with spurs and box.
Morocco boots, with high stitched heels.
Dress boots and shoes, in lace, silk stocking, and plain
satin, black and white, crossed with ribbon.
Costume boots, blue satin Hungarian boots, with
silver heels and trimmings. White and black satin and
silk boots, high heels.
Walking boots and shoes, waterproof, with inside and
outside clumped, and cork soles.
Costume shoes, the old English, Swiss, Greek, Turkish,
and Italian, with heels, gold and silver trimmings.
Dressing slipper, plain and embroidered, with and
without heels, welted and turnovers.
Dress goloshes, black and bronzed, silvered and gilt.
Walking clogs in leather and Indian-rubber, with im-
provements.
Specimens of children's boots, shoes, and goloshes.
Ladies' boot and shoe trees, joint stretched, &c.

115 BERRALL, W., & SON, 60 and 61 *Marylebone Lane*—Manufacturers.

Top boots for racing. Wellington boots. Ladies' boots. Children's boots for weak ankles.

Boot fronts from skins imported in a rough state.

Samples of bark tanned soles from English and foreign hides.

116 PARKER, W., & SONS, *Wood Street, Northampton*—Manufacturers.

Boots and shoes.

117 LLOYD, J. P., *Northampton*—Manufacturer.

Boots and shoes.

118 BEARN & JEFFS, *Parade, Northampton*—Manufacturers.

Boots and shoes.

[The boot and shoe trade of the county of Northampton employs not fewer than 30,000 persons. The raw material, after passing through several processes, is received by the boot and shoe manufacturers. The leather is then cut up into proper sizes, is given out to the workpeople to be blocked at their homes. After this is done the work is then closed, and afterwards made up. These operations are carried on principally at the homes of the workpeople. A very large number of children are employed in this department of trade.]

119 MOORE, G., *Northampton*—Manufacturer.

Boots and shoes.

120 LINE, WM. & JOHN, *Daventry, Northamptonshire*—Manufacturers and Proprietors.

Wellington, Clarence, cloth, leather leg, button, buckskin, dress, best stout calf, and other boots of different qualities. Calf walking, tie, and other shoes.

121 GROOM, J. & R., *Northampton*—Manufacturers.

Policemen's boots and shoes. Long and short waterproof boots; regulation army Blucher boots.

122 GRAHAM, J., 109 *Naylor St., Oldham Road, Manchester*.
Pair of clogs.

124 HUTCHINGS, JOHN, 20 *Green Street, Bath, Somerset*—Inventor & Manufacturer.

Ladies' kid-leather double sole boot, with noiseless rotary heel, and fastened with elastic shank buttons.

Ladies' elastic double sole boot, with noiseless military heel; ladies' single sole boot, and elastic half-dress shoe.

Gentlemen's dress boot, and elastic half-dress ankle boot, with noiseless military heel. Elastic walking boot, suitable for feet troubled with corns and bunions; and boot with noiseless rotary heel.

125 LOMAS & EVES, 155 *Moor Street, Birmingham*.

Improved boot-trees and stretchers.

127 RAMSBOTTOM, E., *Merton, Surrey*—Inventor.

Improved clog. The sole does not bend, but the inside of the clog is moulded to the shape of the foot.

128 ROBERTS, G., *Tivistock, Devon*—Inventor.

Patent clog, having a fixed instep strap, and so constructed that, by means of a drop connected with a lever and spring, it can be put on and off without stooping or touching it with the hands.

130 THOMPSON, S., *Blackburn*—Manufacturer.

Clogs, as worn by the operatives of Lancashire and Yorkshire; the same improved by the introduction of steel-springs into the soles, so as to give elasticity to the tread.

131 ATLOFF, JEAN G., 69 *New Bond Street*—Inventor.

Boots, shoes, and clogs, with side spring.

Dress boots, with steel spring waist.

Military boots, &c.

132 WALLACE, T., *Brandling Place, Newcastle-upon-Tyne*—Inventor.

Improved boots for children having weak ankles and legs.

133 HENSON, W. G., *Kettering, Northamptonshire*.

Morocco boot, designed without blocking.

134 PETTITT, G., & SON, *Birmingham*—Designers and Manufacturers.

Specimens of waterproof goloshes, compounded of caoutchouc, leather, and gutta percha.

135 SAUNDERS, C., *Reading*—Manufacturer.

Red morocco leg patent goloshed vandyked button boot, with 40 stitches to the inch, beaded top, button holes, shell heel, 2½ inches high, on 12 pillars, silk lined, with satin top-piece stitched.

137 ATHENÆUM BOOT & SHOE WAREHOUSE, *Norwich*—Producer.

Boots and shoes.

139 MATHER, J., *Bochdale, Lancashire*—Maker.

Wellington boots, with steel-spring shanks, which improve the form, and retain the shape.

141 CREAK, JAMES, *Church Terrace, Wisbech*—Inventor and Manufacturer.

Improved waterproof button, buckle, and Blucher boots. Provisionally registered.

142 COWLING, JOHN, *Richmond, Yorkshire*—Inventor and Manufacturer.

Gentlemen's shooting boots, on a new principle: by the fastening at the side, the boots can be made tight or easy at any moment. Waterproof to the top, and without gussets.

145 DOE, WILLIAM, *Colchester*—Manufacturer.

Improved strong high shoes.

146 NEWMAN, GEORGE, 101 *Gloster Lane, Brighton*—Manufacturer.

Wellington boot, exhibited for construction and workmanship.

147 MCGIBSON, JOHN, 30 *North John Street, Liverpool*—Manufacturer.

Dress military boots, gold lace tops and welts, with revolving heel.

148 BARRACLOUGH, SAMUEL, *Tamworth*—Inventor and Manufacturer.

Two pairs of dress boots, manufactured of materials to render them impervious to water.

149 ALLEN, CHARLES, & SON, *Treffgarne Rocks, Pembroke, Wales*—Manufacturers.

Gentleman's shooting boot, on an improved plan, warranted waterproof.

150 HEFFORD, JOHN N., *Derby*—Proprietor.

FACER, F. & W., *Northampton*—Manufacturers.

Dress Wellington boots, with emblems inserted on crown and cushion, Rose, Shamrock, and Thistle, &c., and ornamentally-finished top, 53 stitches in the inch.

Patent-leather top boots, with emblem worked in the tongue; crown, and cushion.

Black satin dress Wellington boots, with patent-leather toe, cap, and back-strap.

Satin dress boots, with elastic side springs.

Dress patent-leather pumps.

Dress shoes, without seam or stitch in either tops or bottoms.

151 HUDSON, A., *Cranbrook*—Manufacturer.

Pair of top-boots, with seamless legs and tops.

WRIGHT, RICHARD, *Richmond, Yorkshire*—
Manufacturer.
sue boots and shoes, free from seam or roughness
the sole of the foot. The sole is not dependent on
, or narrow slip of leather, but is attached to the
leather.

VINCENT, R., *Glastonbury*—Manufacturer.
of leather clothes, to imitate superfine black cloth.

LARK, BENJAMIN, 57 *Louth Street, Whitehaven*—
Improver and Manufacturer.
es' Cumberland boot clogs.

URGESS, GEO., *South Bridge, Edinburgh*—Designer
and Manufacturer.
roved Balmoral shooting boots, impervious to water.
land brogues. Specimens of the shoes worn with
l Highland costume in ball or drawing room.

AXTER, RICHARD, *Thirsk, Yorkshire*—Inventor and
Manufacturer.
of walking boots, with clogs and springs attached,
e in walking.
of skating boots, with spring attached to the wrist
foot, and the skate-iron working with a pivot at
l.

PEPLOW, WILLIAM, *Browning Street, Stafford*—
Manufacturer.

es' white satin, ottoman silk, green shot, goloshed,
button gaiter (new design). Elastic gusset, having
t seam. Fawn-coloured lasting side lace and cash-
oots, &c.

shed boots; in a new style.

et carriage tie boots.

l, kid, velvet, and morocco morning slippers.
elastic cloth and button shoes; of new design.

DODGE, W., *Sherbourne, Dorset*—Manufacturer.
ir of hunting boots.

MEDWIN & Co., 86 *Regent Street*—Manufacturer.
stered elastic boots. Elastic side, dress, and other
Top-boots for racing, weight of each boot 2½
, or under 5¼ ounces the pair.

HALL, J. SPARKES, 308 *Regent Street*—
Manufacturer.

ent, British, and Roman shoes and sandals. Anglo-
shoes and boots of the 7th century. Norman half
of Robert (the Conqueror's eldest son). Decorated
of the 11th century. Richard Cœur de Lion's
Norman shoes, with long pointed toes and chains.
ointed shoes, worn by Richard, constable of
, in the reign of Stephen. King John's boots,
decorated with circles. Henry the Third's boots,
from his tomb in Westminster Abbey. St.
i's shoes, rights and lefts. Elegant shoes of the
f Edward I. Shoes with blue, red, and white
g. Shoe of the time of Richard II. Boot of the
f Edward III. Shoes of Henry VIII. and the
Surrey, with wide toes. Boots of the time of
I. and II. Boots and high-quartered shoes,
and Mary. Shoes during the reigns of George
and III. The Duchess of York's shoe, 5½ inches

ic shoe soles, cut by machinery.
ic gaiters, &c.

unized India-rubber goloshes.

HALL & Co., *Wellington Street, Strand*—
Patentees and Manufacturers.
and shoes made of leather-cloth, or pannus-
They are cleaned with ordinary blacking.

165 LEWEN, RICHARD GEORGE, 22 *Portman Place,*
Edgware Road—Inventor and Manufacturer.
Mechanical lasts, made from models taken from nature.
A cast of the foot is taken in plaster, and from this the
shape is reproduced in wood, by machinery.

166 HARTLEY, JOSHUA, 11 *King Street, St. James's Square*
—Manufacturer.
Top-boots, of English leather; boot polish.

168 GODFREY & HANCOCK, 3 *Conduit Street, Regent St.*—
Inventors and Manufacturers.
New ladies' house and walking boot.
Satin, kid, and prunella shoes.
Waterproof over-shoes and extensible goloshes, &c.

169 CANT, G. W., 69 *High Holborn*—Manufacturer.
Patent boot-tree for bootmakers' use.

170 M'DOWALL, W., 11 *Mills Buildings, Knightsbridge.*
Ankle-supporting boots for ladies and children with
weak ankles, and is also applicable to gentlemen's boots.
Provisionally registered.

171 DESMOND, MICHAEL—Manufacturer.
Pair of dress patent-leather gentleman's boots; square
edge; forepart, 40 stitches to the inch; sole and welt
thickness of a sixpence; channel waist; and inch and a
half heel.

173 GUNDRY, WILLIAM, 1 *Soho Square*—Manufacturer.
Ladies' and children's boots and shoes, including speci-
mens in different colours, and shapes of the "soccopedes
elasticus."
Boots made of elastic silk, but without the side
gussets. Cork soled boots, made with Dowie's patent
elastic waistpieces.

174 MARSH, F., 148 *Oxford Street*—Manufacturer.
Assortment of ladies' and children's boots and shoes.

176 GOODEVE, GEORGE, 16 *John Street, Crutched Friars*—
Designer and Inventor.
A pair of top boots, for horse racing; weight, 3 ounces;
made in four hours.

177 GUPPY, JOHN WILLIAM, 2 *Prince's Court, Dorset*
Place, Pall Mall East—Manufacturer.
Ladies' cloth button boots, stitched welts and patent
leather, goloshed.

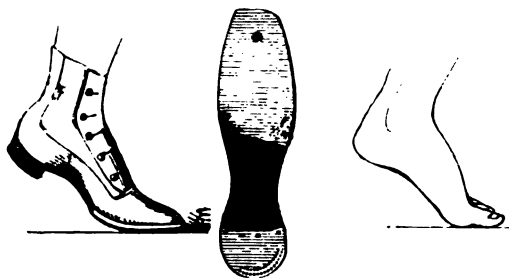
178 WINTER, C., *Norwich*—Manufacturer.
Ladies' boots and shoes, with embellished soles.

179 GILBERT & Co., *Old Bond Street*—Manufacturer.
Jockey, hunting, Holderness, shooting, and dress boots.
Lady's riding boots. Elastic hunting boots, with elastic
gores at the bend of the knee, fitting without wrinkles
in any position of the leg, and equally adapted for walking
or riding. Registered.

180 DOWIE, JAMES, 455 *Strand*—Inventor,
Patentee, and Manufacturer.
Boots and shoes, in adult and smaller sizes. Military
boots.
Model of a machine to relieve the boot and shoemaker
from the usual constrained posture.

181 TAYLOR & BOWLEY, 53 *Charing Cross, and 25*
Spring Gardens—Manufacturers.
Boots and shoes, made with the patent elastic waists,
formed of India-rubber and prepared leather, admitting
of the natural action of the feet, and giving ease to the
wearer. Exhibited for durability and economy. The
application of this principle is represented in the cut on
the next page.

By this plan thick soles are freed from rigidity; and persons accustomed to wear thin soled shoes, may use with advantage the stouter kinds made on this principle. The soles are made with gutta percha, cork, or leather. Having layers of felted hair worked between the soles, unpleasant creaking is avoided, and elasticity and warmth imparted.



Memrs. Taylor and Bowley's Patent Elastic Waist Boots.
(179, 180, 181, Main Avenue, West).

- 182 HALL, R., 97A Quadrant, Regent Street—Inventor and Manufacturer.

Boots and shoes of elastic enamelled cloth, for tender feet.

India-rubber goloshes and fishing-boots.

- 182A DODSON, J., 79 Chiswell Street—Manufacturer.

Ladies' and gentlemen's boots, shoes, and slippers.

- 183 GATES, THOMAS FREDERICK, 5 Upper Eaton Street, Pimlico—Designer and Manufacturer.

Wigs, showing a transparent parting, free from "roots" or short hair, and other improvements.

- 184 HODGES, T., 316 Oxford Street—Manufacturer.

Self-adjusting shoe, in ordinary leather enamel, and in buckskin, showing the effect of a composition for filling up and waterproofing the surface, and its susceptibility of receiving a polish.

Plan for removing the appearance of bunions.

Boots in illustration of the self-adjusting principle.

- 186 PATTISON, EDWARD, 74 Oxford Street—Manufacturer.

Ladies' boots and shoes.

- 188 BARKER, WM. GEORGE, 18 Old Cavendish Street—Inventor and Manufacturer.

Pair of gentleman's Oxonian shoes, closed by an invisible elastic fastening. Registered pair for a lady.

- 189 BIRD, WILLIAM, 86 Oxford Street—Inventor and Manufacturer.

Ladies' elastic boots, without any gusset at the sides.

Registered boots without any seam up the front.

- 190 WILDSMITH, MATTHEW, 1 Sherrard Street, Golden Sq.—Inventor and Manufacturer.

Flexible Wellington boots, with springs at the sides.

- 191 CLARKE, EDWARD WM., 12 Southampton Row, Bloomsbury—Manufacturer and Inventor.

Boots and shoes of various kinds and styles. Casts and lasts for deformed feet, &c.

- 192 HICKSON & SONS, 20 West Smithfield—Manufacturers or Designers.

Boots and shoes, of various qualities and forms, including specimens with elastic fronts and sides, gutta percha and cork soles.

Specimens of the various kinds of boots and shoes, supplied for the use of the British army and navy, the police, and the public institutions.

Specimens of winter boots and shoes, made of patent machine-felt.

Samples of the material employed in the manufacture.

- 194 HUBERT, CHARLES, 292 Regent St.—Manufacturer.

Wellington, top, elastic, registered, and other boots and shoes.

A boot and shoe made from a single piece of leather.

- 195 HEATH, STEPHEN H., 38 Poultry, and 17 St. Martin's-le-Grand—Designer.

Boots and shoes of soft leather.

Patent waterproof and other leather boots and shoes, for dress or walking.

Boots and shoes of ordinary calf-skin.

- 196 CROW, THOMAS, 3 Maidenhead Court, Cripplegate—Designer, Manufacturer, and Proprietor.

A patent leather boot, with shell heel, satin waist, and square edge; the heel, two inches high, is composed of fifty lifts, worked in the style of a shell, the substance of each being one-eighth of an inch.

Pair of full-dress boots.

- 197 PEAL, NATHANIEL, 11 Duke Street, Grosvenor Square—Manufacturer.

Half-leg hunting boots, and whole-leg hunting or fishing boots, of waterproof leather.

- 198 CREMER, GEORGE, & Co., Old Kent Road—Manufacturers and Inventors.

Registered Wellington boots, made on a new principle; one exhibited in a complete state, and the other in the course of manufacture.

- 199 ROBOTHAM, SAMUEL, 28 Newton Street, Birmingham—Manufacturer.

Clogs, made of gutta percha, leather, and wood, with patent fastening.

- 200 BROTCHE, RICHARD, 3 Oxendon Street, Haymarket—Inventor and Proprietor.

Patent vulcanized plate for boots and shoes, to resist wet or damp.

Six pairs of boots and shoes with vulcanized soles.

- 201 NORMAN, SAMUEL WILLS, 4 Oakley Street, Westminster Road—Inventor and Manufacturer.

Ladies' cork and leather boots, waterproof, and light Ladies' shoe; the heel of which will retain its polish.

- 202 HOBY, GEORGE, 48 St. James's Street—Manufacturer.

Napoleon boots, made of waterproof leather. Top boots, Wellington boots, and Oxford shoes, of the same material. Specimens of the leather, unmanufactured. Composition with which the articles are cleaned.

- 203 SCHALLER, J., 19 Charles Street, Middlesex Hospital—Inventor and Manufacturer.

New water-proof boots and shoes and overshoes. Clogs, elastic gaiters, boots, &c.

- 204 RIDLEY, J., St. Paul's Churchyard—Manufacturer.

Ladies' boots and shoes.

- 205 WILSHIN, S. B., 86 Albany Road, Camberwell—Manufacturer.

Skating-boots on a new principle.

- 206 WALKER, EDWARD, 19 Whitecross Place, Wilson St., Finsbury—Designer and Manufacturer.

Registered ladies' elastic Victoria riding and walking boot.

- 207 WALSH, WILLIAM, 9 Clipstone Street, Portland Road—Manufacturer and Designer.

A pair of shoes.

TAKLEY, C., 238 High Street, Borough—Inventor.
 sl of a shoe, composed of black ebony, with gold and studs, placed on a stand made of king-wood, sing 74 pieces. A specimen of workmanship for inera.

HALTER, GEORGE, 46 Windsor Street, Islington—Inventor and Manufacturer.

of new-invented cork boots, waterproof in the independently of the cork, and waterproof round as of the upper to the extent of one inch, so as to entilation. The cork inside is uncovered, and so cted as not to be displaced by wearing. Adapted as riding and walking boots.

POLLETT, THOMAS, Earl's Court, Kensington—Inventor and Manufacturer.

ington boots, with revolving leather heel; ladies' with revolving brass heel; three model revolving

THOMAS & SON, 36 St. James's Street—Manufacturers.

boot, regulation for the Household cavalry. Stout racing, Wellington, laced shooting, silk stocking hessian, button, and other boots. land brogues. Model pump. Regulation steel and ura.

GORDON, EDWIN, 6A Princes Street, Leicester Square—Inventor and Manufacturer.
 v clump-sole boots, with pegged waist.

MITCHELL, FREDERICK, 8 Cartwright Street, Royal Mint—Maker and Proprietor.
 w' cork sole boots, made of royal purple silk velvet, lered with rose, shamrock, and thistle, and the laurel.

JURRIE, JAMES, 3 Panton Street, Haymarket—Inventor and Manufacturer.
 oved waterproof boots.

AULKNER, OLIVER, 30 Wigmore Street, Cavendish Square—Inventor and Maker.
 of waterproof fishing or shooting boots.

BRIDGES, CHARLES H., 57 Charlotte Street, Portland Place—Inventor and Manufacturer.
 tered rotary heel for boots and shoes, made either er or wood, completely detached from the boot or When the leather or wood is worn away, it can be d with very little trouble and expense, while the part will last for a considerable period.

BECKETT, GEORGE, 41 Fenchurch Street—Manufacturer.
 us boots.

ANGDALE, HENRY, 57 Mount Street, Grosvenor Square—Manufacturer.
 ren's boots and shoes, in various forms and ls; the binding or needlework by Ann and Helen le. Side-button boots stiffened round the ankles.

ROBERT, A., 123 Regent Street—Manufacturer.
 s.

GRUNDY, THOMAS, 44 St. Martin's Lane, and 133 Leadenhall Street.
 s made of leather prepared by a new process, enders them soft and pliable, having a fine polish, quiring no blacking.

COTT, S. T., 1 Union Street, Southwark—Inventor.
 us registered adjusting lasts, with metallic slides veable toes.

230 GARNER, DAVID, 41 Finsbury Market—Manufacturer and Designer.

Portable boot-trees of one leg only, comprising the means of treeing five different kinds of boots and shoes; containing also a set of blacking-brushes, blacking, boot-hooks, powder-box, &c.

Boot-lasts, adapted for diseases of feet, bunions, &c.
 Wellington boot lasts. Boot and shoe lasts.

235 GEARY, NICHOLAS, 61 St. James's Street—Inventor and Manufacturer.

Improved jack boots.
 Regimental gloves, intended to show an improvement in the gauntlet.

236 BOWLER, JAMES, 2 Little Portland Street—Manufacturer.

Lasts, trees, and stretchers for ladies' and gentlemen's boots.

237 SMITH, J., Bedford—Inventor and Patentee.
 Soccopedes elasticus. Ladies' boot.

238 HEWLETT, ANTHONY, 5 Burlington Arcade—Part Inventor.

Busts of Her Majesty, His Royal Highness Prince Albert, and the Prince of Wales; exhibited to display a new method of artificial hair without springs, elastics, or ribbons.

240 BUTTERWORTH, WILLIAM, & Co., 9 Great Dover Street, and 4 Swan Street, Southwark—Inventors and Manufacturers.

The registered Panelastic boot; obviating the unsightly appearance and other disadvantages of inserted gores.

241 MARSHALL, C., 207 Oxford Street—Manufacturer.
 Ladies' boots and shoes.

242 PARKER, JOHN, 35 Dame Street, Dublin—Manufacturer.

Boots:—Gentlemen's enamelled leather brown top; patent Napoleon; cork-sole walking; patent leather dress; and dress opera; with various others. Morocco leather slippers, embroidered with royal arms in gold.

Ladies' white tabinet and black satin spring-side boots and dress shoes. Button walking shoes. Kid boots. Cork-sole boots. All made of Irish materials and manufacture.

243 WEBB, EDWARD, Worcester—Manufacturer.

Coloured hair-cloth, and cloth composed of hair and silk, for covering chairs, sofas, &c.

Horse-hair carpet, woven like Brussels carpet, and suitable for halls, offices, churches, &c.

244 BURGESS, R., 15 & 16 Opera Arcade, Charles Street, St. James's—Inventor and Manufacturer.

Improved wig. New hair-brushes. Bandoline.

245 BROWNE, FREDERICK, 47 Fenchurch Street—Manufacturer and Designer.

Ladies' and gentlemen's head-dresses of ornamental hair.

246 BOUCHET, C., 74A New Bond Street—Manufacturer.

Specimens of the new improved crochet-work in wig making, on skin and on net. The mechanism on the moving scalp is to show the difference in the appearance of a head with and without a scalp.

247 BECK, ROBERT, 79 Cheapside—Manufacturer.

Lady's head dress, gentleman's peruke, front head dresses, piece of straight hair, &c., showing the improvements made in wig making during the past ten years.

248 ROSSI, LOUIS, 254 Regent Street—Inventor and Manufacturer.

Wigs of various kinds.

249 WINTER, WILLIAM, 205 *Oxford Street*—Inventor.

Transparent wigs for ladies and gentlemen; head-dresses, &c.

250 PREVOST, MARK, 100 *St. Martin's Lane, Westminster*—Inventor and Maker.

A wig, from which the transverse elastic band (that covers the apex of the temples of the wearer) is removed, and circulation in the arteries preserved. The metal cross spring (used in open temple wigs) to grasp the head is not employed. The invention consists of two springs placed over the temples, which expand while the wig is being drawn on, and collapse to hold it on permanently.

251 CARLES, H. R., 45 *New Bond Street*—Inventor and Manufacturer.

Large wax head, with white bald knotted wig; the same with knotted false-hair beard.

A wig, knotted on strong material.

Lady's head-dress, with transparent division.

Bald white wig, with skin top, made with braid.

Transparent scalp.

Gentleman's wig, the division made of hair only; the same with transparent division.

253 ISIDORE & BRANDT, 217 *Regent Street*—Inventors and Manufacturers.

White wig, with the arms of England formed by work in hair. Peruke à la Marie Stuart. Powdered wig, in the reign of Louis XV. Lady's wig, after nature. Various wigs, fronts, and curls, produced by a new process.

255 WORN, RICHARD, 17 *Dawson Street, Dublin*—Manufacturer.

"Gossamer" transparent Temple spring wig, with cross division; and with parting of crape. West, with skin parting, to avoid contraction, &c.

256 MADDEN & BLACK, *Capel Street, Dublin*—Manufacturers.

Ladies' and gentlemen's perukes, with skin partings, and with transparent partings. Ladies' fronts, and a gentleman's peruke, with gossamer parting. Improved bar wig.

257 DOUGLAS, R., 34 *North Audley Street*—Inventor.

Lady's head-dress. The hair is 7 feet long, being joined together so as to appear of one length.

Circular hair brushes, capable of revolving either way, or of being used as an ordinary brush.

259 CAUSSE, D. A., 267 *Regent Street*—Manufacturer.

Ladies' hair fronts, on transparent silk net, in various styles.

Ladies' and gentlemen's perukes, on fine Malines silk net, and inserted through the skin.

Gentleman's scalp.

260 MUSSA, MICHEL, 4 *Victoria Road, Pimlico*—Inventor and Manufacturer.

Improved specimens of theatrical wigs and beards.

261 PIGOTT, JOSEPH, *Cork*—Manufacturer.

A lady's head-dress, intended as a useful and ornamental substitute for the natural hair; it is light and transparent, each hair being set in singly.

262 ROBES, W. *Richmond, Surrey*—Inventor.

Ladies' head-dress.

264 TYZACK, W. V., *Norwich*—Manufacturer.

Specimens of false hair, which show the skin of the head between every hair.

265 O'LEARY, JOHN, 53 *South Mall, Cork, Ireland*—Manufacturer.

Improved gentleman's wig, each hair has been worked

in separately on the net, which constitutes the ground or frame work, and renders it transparent.

266 KELSEY, JOHN TURNER, *Lingfield, East Grinstead*—Manufacturer.

Crop hide of North Wales runt, of the great weight of 82 lbs., tanned with Sussex oak-bark; used for boot and shoe soles, and for machinery. Prepared at Batnor's tan-yard, in Lingfield. The tanning occupied two years.

[The process of tanning—that is, of the combination of the tannic acid of the oak bark with the gelatine of the hide—is generally a slow one; in the present instance remarkably so. New methods of hastening it forward have been introduced; but it is said that the leather thus produced is not equal in solidity and durability to that obtained in the ordinary slow manner.—R. E.]

267 DUCIE, EARL, *Tortworth Court, Wotton-under-Edge, Gloucestershire*—Proprietor.

Cart harness, for agricultural and other purposes, with Vick's improved registered hames—constructed to give facility of draught by raising or lowering the huffing-tugs. The cart-saddle and collar are made of patent leather, with rollers in the tree of the cart-saddle upon which the back-band works freely. Made by Richard Vick, saddle and harness maker, Gloucester.

269 TAYLOR, T., *Banbury, Oxon*—Inventor.

Ladies' and gentlemen's riding-saddles, inflated with air. Hunting-saddles, with patent moveable panels. Registered bits, various webs, &c.

270 OAKLEY, TOM, *Maidstone*—Designer and Manufacturer.

Lady's saddle, quilted all over, with fancy wool-work introduced. The off-side head is dispensed with, and lightness made an object.

271 SAUNDERS, FRANCIS WOOLHOUSE, *Thame, Oxon*—Manufacturer.

A four-horse cart harness, for agricultural and general purposes; the blinkers made with plates, similar to carriage harness, preventing any injury to the eyes.

272 BLOWERS, WILLIAM RANDALL, *High Street, Maldon, Essex*—Manufacturer.

Variety of harness for draught horses.

273 COWAN, LACHLAN, *Barrhead, New Paisley*—Producer.

Set of cart harness.

275 COX, THOMAS, *Buff Coat Lane, Norwich*—Designer and Manufacturer.

Pony harness, woven from flax grown in Norfolk.

Fancy baskets, woven from the same materials.

277 CHARGE, ROBERT, *Horse Market, Darlington, Durham*—Manufacturer.

Saddle, adapted for riding or hunting, light in weight, and new in style.

278 DAX, RICHARD, *High Street, Welshpool, North Wales*—Inventor.

Harness and riding bridles, with noseband horse-stopper attached.

279 POLLOCK, JAMES, 151 *Stockwell Street, Glasgow*—Manufacturer.

Complete set of Scotch horse harness, including the various articles that a horse requires when in yoke.

283 COZENS & GREATREX, *Walsall*—Manufacturer.

Tanned and curried leather for bridles and reins; and for stirrup leathers.

Curried hog-skins for saddles. Seal-skins for saddle-welts.

RANDALL & DICKS, 21 Greek Street, Soho—
Manufacturers.

for oil leather, in raw state and in various stages of facture. Buck, doe, calf, sheep, and lamb skins, with specimens in breeches, gloves, braces, and te hammers.

ELMAN, R. W. & J., 17 Greek Street, Soho—
Manufacturers.

nens of oil leather in various stages of dressing, k, doe, fawn, buffalo, calf, sheep, and lamb skins.

process of oil or chamois leather dressing, as practiced in England, consists in beating fish oil into the pores of the skin, and afterwards partially drying or oxygenating.

When the skin is perfectly saturated by the reprocess of hammering in the mill, and partial it is allowed to become hot by natural fermentation, then, by washing in strong alkali, becomes the most pliable of all kinds of leather.]

STLER & PALMER, Grange Road, Bermondsey—
Manufacturers.

med border, bag, horse, and split hides. Black, blue, drab, maroon, crimson, and brown enamelled hides. The border hide is manufactured from the hide of an ox, being (as far as practicable) left the thickness; the other hides (with the exception of the border) are the same description of hide, split by many required thickness; thus making two, whereas the border hide had to be shaved to the proper thickness by manual labour.

Japanned split hide shows the flesh side curried and japanned for coach purposes.

ELSON, ROBT. B., 9 Hampstead St., Fitzroy Square—
Inventor.

mode of cleaning and restoring worn and decayed leather, for upholstery purposes, coach linings, &c.

GEORGE, JOSEPH, 81 Dean Street, Soho—
Manufacturer.

and painted leather, capable of being made of any length, for the hangings of rooms, screens, &c. us specimens of ornamental leather, borderings, e-tops, edges of book-shelves, covering furniture, &c.

ossed and gilt leather, of different lengths, for agings of rooms, screens, &c., in every variety of

DIXON & WHITING, Manning Street, Bermondsey—
Manufacturers.

des of enamelled, japanned, and coloured hides; which is one of the largest hide splits, curried; o a hide split into three, the grain enamelled, and splits japanned.

machine by which a skin is split into two or three is of beautiful and ingenious construction. It essentially of two grooved rollers, which seize the skin and present it to the edge of a rapidly-moving horizontal knife, by which it is speedily split into halves. The relative thickness of the halves can be adjusted by the machine.]

BOUTCHIER, MORTIMER, & Co., Bermondsey—
Proprietors and Leather Factors.

s, leather, and tanning materials.

BOSEARD, JOHN, 7 Church Street, Russell Street, Bermondsey—
Manufacturer.

sh calf skins, tanned and dressed (Paris and Bordeaux fashion), with oak bark and other English ingre-

297 TOMBS, E., Theberton Street, Islington—
Producer.
English calf skin.**298 BRANSCOMBE, S., Liverpool—**
Manufacturer.

Tanned buffalo hides, imported into London in a salted state from the Cape of Good Hope, in 1847, and tanned at Lynn, in Cheshire.

299 HEINTZE, L., 1 School Lane, Liverpool—
Importer.

Black japanned calf-skins, tanned and prepared by Heintze and Freudenberg, Weinheim, near Mannheim, on the Rhine.

300 BROWN, A., Milsom Street, Bath—
Inventor.
Peruke, manufactured without stitching.**301 HUDSON'S BAY COMPANY—**
Producers.
(Main Avenue West.)

Specimens of skins from the Arctic Regions, belonging to the HUDSON'S BAY COMPANY, selected for the Exhibition from their importation of 1851; prepared and arranged by the exhibitors, from No. 1 to No. 27.

[The immense tracts of country over which the Hudson's Bay Company has control may be considered as vast hunting-grounds, affording a varied and exhaustless supply of furs. The territorial possessions of this Company cover nearly one-eighth of the habitable globe. Russia is next in order and importance in this respect, but with a different race of animals. The fur produce of North America and the Canadas is also important. As we approach the tropics and the warmer regions, the silky fur with which the animals are clothed in the northern climes disappears, and fur of a totally different character is met with, which, although splendid in appearance, is not adapted for warmth or general use.]

TABLE OF IMPORTS AND EXPORTS.

	Total Importation into England.	Exported.	Consumed in England.
Raccoon	525,000	525,000	None.
Beaver	60,000	12,000	48,000
Chinchilla	85,000	30,000	55,000
Bear	9,500	8,000	1,500
Fisher	11,000	11,000	None.
Fox red	50,000	50,000	None.
" cross	4,500	4,500	None.
" silver	1,000	1,000	None.
" white	1,500	500	1,000
" grey	20,000	18,000	2,000
Lynx	55,000	50,000	5,000
Martin	120,000	15,000	105,000
Mink	245,000	75,000	170,000
Musquash	1,000,000	150,000	850,000
Otter	17,500	17,500	None.
Fur seal	15,000	12,500	2,500
Wolf	15,000	15,000	None.

EUROPEAN FURS.

	Imported.	Exported.	Consumed in England.
Martin, Stone, and Baum . . .	120,000	5,000	115,000
Squirrel	2,271,258	77,160	2,194,098
Fitch	65,091	28,276	36,815
Kolinski	53,410	200	53,210
Ermine	187,104	None.	187,104

—J. A. N.]

1. Group of black and silver foxes (*Vulpis fulvis*, var. *Argentatus*).

2. Group of foxes (*Vulpis fulvis*, var. *Decussatus*).

3. Group of red and silver foxes (*Vulpis fulvis*).

4. " white " (*Vulpis lagopus*).

5. " kitt " (*Vulpis velox*).

[The black and silver fox is the most valuable of his tribe: they are generally purchased for the Russian and

Chinese markets, being highly prized in these countries. The cross and red fox are used by the Chinese, Greeks, Persians, &c., for cloak-linings and for trimming dresses. The white and blue fox is used in this and other countries for ladies' wear. In the sumptuary laws passed in the reign of Henry III., the fox is named with other furs then in use.—J. A. N.]

6. Group of otter (*Lutra Canadensis*).

[The Hudson's Bay North American and European otters are chiefly exported for the use of the Russians, Chinese, Greeks, and others, for caps, collars, trimming national dresses, robes, &c. Upwards of 500 otters, the produce of Great Britain, during the last year, were exported.—J. A. N.]

7. Group of beaver (*Castor Americanus*).

[The beaver in former years was one of the Hudson's Bay Company's most valuable productions; but since its use has been almost entirely discontinued in the manufacture of hats, it has lost much of its value. Experiments have, however, been made, and with prospect of success, to adapt its fine and silky wool to weaving purposes. The skin of the beaver is prepared by a new process, after which the surface is cut by a new and ingenious machine, and the result is a beautiful fur for ladies' wear. It is exported in its prepared state to various parts of Europe and the East. The rich white wool from the under part of the beaver is largely exported to France.—J. A. N.]

8. Group of lynx (*Felis Canadensis*).

9. " lynx cat (*Felis Rufa*).

[Both the above furs, when dyed, were formerly much used. It is still dyed and prepared, and exported in large numbers for the American market. In its natural state, it is a greyish white, with dark spots, and is used by the Chinese, Greeks, Persians, and others, for cloaks, linings, facings, &c.: it is very soft, warm, and light. The fur formerly called the lucern is the lynx.—J. A. N.]

10. Group of wolf (*Canis Occidentalis*).

11. " fisher (*Mustela Canadensis*).

12. " wolverin (*Gulo luscus*).

[The wolves are generally used as cloak and coat linings in Russia, and other cold countries; also for sleigh-coverings, and open travelling carriages. The other skins enumerated are principally used for trimmings, linings, &c. The tail of the fisher is very valuable, and exclusively used by the Jews.—J. A. N.]

13. Group of badger (*Taxidea Labradoria*).

[The North American badger is exported for general wear; its soft fine fur renders it suitable for that purpose. The European badger, on the contrary, from the nature of its hair, is extensively used for the manufacture of shaving brushes.—J. A. N.]

14. Group of martin or sable (*Mustela martes*).

[The Hudson's Bay martin is consumed in large quantities in this country, in France, and in Germany. The lining of a mantle made of black sables, with white spots, and presented by the Bishop of Lincoln to Henry I., was valued at 100*l*. In Henry the Eighth's reign, a sumptuary law confined the use of the fur of sables to the nobility above the rank of viscounts.—J. A. N.]

15. Group of mink (*Mustela vison*).

[The mink is exclusively the produce of the Hudson's Bay possessions and North America; it is consumed in Europe in immense numbers, principally for ladies' wear.—J. A. N.]

16. Group of musquash, or musk-rat (*Fiber sibiricus*).

[The musquash, or large American musk-rat, is imported into this country in immense numbers: it was formerly much used in the manufacture of hats, but the introduction of the silk hat has entirely superseded its use; and the fur is employed for wear after having undergone preparation.—J. A. N.]

17. Group of weenusk (*Arctomys empetra*).

18. " swan (*Cygnus ferus*).

19. " white hare (*Lepus glacialis*).

20. " rabbits (*Lepus Americanus*).

[The Hudson's Bay rabbit is one of the least valuable skins imported by this Company: like all furs from the Polar regions, its hair is fine, long, and thick, but the skin is so fragile and tender that it is almost useless.—J. A. N.]

21. Group of black bear (*Ursus Americanus*).

22. " brown bear (*Ursus, var. Americanus*).

23. " grey bear (*Ursus ferox*).

[The large North American black bear is technically termed the army bear, because it is generally used for military purposes in this and other countries, for caps, pistol-holsters, rugs, carriage hammercloths, sleigh coverings, &c. The fine black cub bears are much sought after in Russia for making shube-linings, coat-linings trimmings, facings, &c. The other sorts, with the large grey bears, for sleigh-coverings and accompaniments, &c. The white Polar bear, the supply of which is very limited, is generally made into rugs, which are often bordered with the black and grey bear. The brown or Isabella bear is at the present time used for ladies' wear in America.—J. A. N.]

24. Group of sea-otter (*Eutrydra maritima*).

[The sea-otter is most sought after by the traders, on account of its great commercial value: it is said to be the royal fur of China, and is much used by the officers of state, mandarins, &c. It is in great esteem in Russia, and principally worn by gentlemen for collars, cuffs, facings, trimmings, &c. On account of its great weight, it is rarely used by ladies.—J. A. N.]

25. Group of swan quills.

26. " goose quills.

27. " isinglass in its natural state.

[This specimen is in its original state; by a subsequent process it is prepared for domestic use.—J. A. N.]

301A NICHOLAY, JOHN AUG., & SON, 82 Oxford Street—Collectors, Importers, Manufacturers, &c.

Selected from CANADIAN importation, with the assistance of C. M. Lampson, Esq.

(Main Avenue, West.)

28. Group of racoon (*Procyon lator*).

[The finest racoon furs are produced in North America, and are imported into this country in immense numbers. They are purchased here by the merchants who attend the periodical fur sales, and who dispose of large quantities at the great fair at Leipsic: they are principally used in Russia, and throughout Germany, for lining shubes and coats, and are exclusively confined to gentlemen's wear. The dark skins are the choicest, and are very valuable.]

29. Group of cat lynx (*Felis Rufa*).

30. Group of mink (*Mustela vison*).

31. Group of grey fox (*Vulpis Virginianus*).

[The Virginian, or North American grey fox, is the

produce of the Canadas, Newfoundland, Labrador, &c., and is at present much used for open-carriage wrappers.]

EUROPEAN FURS, selected by the exhibitors.

32. Group of Russian sable (*Martes sibirica*).

[The Russian or Siberian sable is one of the most costly furs, and is manufactured into linings, which are generally used as presents by great potentates, being of the value of 1000 guineas and upwards. The Lord Mayor, Aldermen, and Sheriffs, &c., of the city of London, have their robes and gowns furred with this sable according to their respective ranks. The tail of the sable is also used in the manufacture of artists' pencils or brushes. Russia produces about 25,000 of these valuable and esteemed skins annually.]

33. Group of stone martin (*Martes algularis*).

[The stone martin is widely spread over Europe, and derives its name from the fact of its selecting rocks, ruined castles, &c., as its haunts. The French excel in dyeing this fur, and it is in consequence termed French sable.]

34. Group of baum martin (*Martes abietum*).

[The baum or wood martin is so named from its being invariably found in woods and pine forests in Europe. The fur in its natural state is similar to the North American sable, but coarser. It is distinguished by the bright yellow colour of its throat; when dyed, the fur closely resembles the real sable.]

35. Group of ermine (*Mustela erminea*).

[The ermine is produced in most countries; but the best is from Russia, Sweden, and Norway, and is killed in winter when the fur is pure white (except the tail, with its jet black tip), it being at that season in its greatest perfection: in summer and spring it is grey and of little or no value. It is the weasel of more southern climes. The ermine is the royal fur of Russia, Germany, Spain, Portugal, Italy, &c. In England, at the coronation of the Sovereign, the minever, as the ermine is styled in heraldic language, is used, being powdered, that is, studded with black spots; the spots or powdered bars on the minever capes of the peers and peeresses being in rows, and the number of rows or bars denoting their various degrees of rank. The sovereign alone and the blood royal having the minever of the coronation robes powdered all over, a black spot being inserted in about every square inch of the fur, crimson velvet being used on that occasion. The crown is also adorned with a band of minever, with a single row of spots; the coronets of the peers and peeresses having a similar arrangement. The black spots are made of the black Astracan lamb. On state occasions, in the House of Lords, the Peers are arrayed in their robes of state, of scarlet cloth and gold lace, with bars or rows of pure minever, more or less according to their degrees of rank; the sovereign alone wearing the royal minever, powdered all over. The Judges in their robes of office are clad in scarlet and pure ermine. The ermine, with the tail of the animal inserted therein, is used as articles of dress for ladies, in every variety of form and shape, according to the dictates of fashion, and also as cloak linings. The minever can only be worn on state occasions by those who, by their rank, are entitled to its use; but as an article of fashion for ladies' wear there is no prohibition in force. In the reign of Edward the Third, furs of ermine were strictly forbidden to be worn by any but the royal family, and its general use is prohibited in Austria at the present

time. In mercantile transactions, ermine is always sold by the timber, which consists of 40 skins. The minever fur of a former era was the white belly of the grey squirrel.]

36. Group of kolinski (*Mustela Siberica*).

[The kolinski or Tartar sable is procured from Russia, belongs to the weasel tribe, and is in colour a bright yellow; it is much used in its natural state, and also dyed to imitate the cheaper sables.]

37. Group of squirrel, black (*Sciurus Niger*).

38. " squirrel, blue (*Sciurus*, var. *Niger*).

39. " squirrel, kasan (*Sciurus*, var. *Griseus*).

40. Ditto squirrel, red (*Sciurus vulgaris*).

[The squirrel abounds in Russia (where it is produced in the greatest perfection), in such immense numbers as would appear almost incredible; the importation from thence to this country alone, last year, exceeding 2,000,000. The celebrated Weisenfels lining is made from the white part of the dark-blue squirrel. A full-sized cloak-lining weighs only 25 ounces: it is known as the *petit gris*. For colder climates the linings are made from the back or plain grey part of the squirrel, the best having part of the tail left on each skin. Russia produces about 23,000,000 annually.]

41. Group of fitch or pole-cat (*Putorius feticus*).

[About 40 years since this fur was more largely used than at present. It is produced in the greatest perfection in this country.]

42. Group of Crimea grey lamb.

43. " Ukraine black lamb.

44. " Astracan black lamb.

45. " Astracan grey lamb.

46. " Persian black lamb.

47. " Persian grey lamb.

48. " Spanish lamb.

49. " Hungarian lamb.

50. " English lamb.

[The grey and black Russian lamb is mostly used for gentlemen's cloak and coat linings, for facings, collars, caps, &c., and also for army purposes. The Astracan lamb is a rich, wavy, glossy, black skin, very short in the fur, having the appearance of beautiful watered silk. In order to obtain this choice skin, it is averred that the parent sheep is destroyed a certain time before the birth of the lamb. The Persian, grey, and black lamb, is covered with very minute curls; this is produced, it is said, by the animal being, as soon as born, sewn up tightly in a leathern skin, which prevents the curl expanding. The Hungarian lamb is produced in that country in immense numbers; of it the national coat, called the *Juhász Bunda*, is made. In the summer or wet weather the fur or woolly part is worn outside; in winter, when warmth is required, it is reversed, the skin is tanned or dressed in a way peculiar to the country, and decorated and embroidered in accordance with the means and taste of the wearer. In Spain, the lamb is used for the well-known and characteristic short jacket of that country, which is adorned with filigree silver buttons; the coarser kinds of both colours are used for our cavalry, and is also employed for mounting and bordering skins, as leopards, tigers, &c., for ornamental and domestic purposes. In the reign of Richard the Second, the sergeant at law wore a robe furred inside with white lambskin and a cape of the same.]

51. Group of Perewaitzki.

52. " Hamster.

[The above are from Russia; the former is used by

ladies, the latter is made into cloak-linings, which are exceedingly light, durable, and cheap.]

- 53. Group of coloured cat.
- 54. " black cat.
- 55. " black Dutch.
- 56. " coloured Dutch.

[The cat, when properly attended to, and bred purposely for its skin, supplies a most useful and durable fur; in Holland it is bred and kept in a confined state till the fur is in its greatest perfection, and is fed entirely on fish. In other countries, and especially in our own, it is produced in large numbers. The wild cat is much larger and longer in the fur, and is met with in extensive forests, particularly in Hungary; the colour is grey, spotted with black, and its softness and durability render it suitable for cloak and coat linings, for which purpose it is much used. The black species is also much in request, and similarly used, and, with the spotted and striped varieties, is made into wrappers for open carriages, sleigh coverings, and railway traveling.]

- 57. Group of English rabbit, silver grey, (*Lepus cuniculus*), presented by Her Grace the Duchess of St. Albans.
- 58. Group of English black rabbit (*Lepus var.*).
- 59. " English white rabbit.
- 60. " English grey rabbit.
- 61. " Flemish blue rabbit.
- 62. " Polish white rabbit.

[The English rabbit, both in its wild and domestic state, abounds in such numbers that the supply is inexhaustible: it was formerly employed to make the felt bodies or foundation for the beaver hat; at present, not being used for that purpose, it is dressed, dyed, and manufactured in immense quantities into various useful articles. The wool has recently been used in making a peculiar cloth, adapted for ladies' wear. The English silver-grey rabbit was originally a breed peculiar to Lincolnshire, where great attention was paid to it. Warrens have since been formed in various parts of the country. It is in great demand in China and Russia, to which countries it is invariably exported, on account of the high price there obtained. The white Polish rabbit is a breed peculiar to that country. The finer sorts of white rabbit are much used as substitutes for ermine. So late as the reign of Henry the Eighth, such importance was attached to the coney or rabbit skin, that the charter of the Skinners' Company shows they were worn by nobles and gentlemen. Acts of Parliament were passed regulating their sale and exportation, which are still in existence.]

- 63. Group of European grey hare (*Lepus timidus*).

Seal (*Phoca*).

- 64. Group of seal, GEORGIA, SHETLAND ISLES, FALKLAND ISLES, LOMAN'S ISLAND, and CAPE.

- 65. Group of plucked and prepared seal, natural colour.
- 66. " plucked and prepared seal, dyed.
- 67. " Greenland and Newfoundland seal.
- 68. " Greenland and Newfoundland seal, dyed.
- 69. " spotted and silver seal.

[The seal is an inhabitant of most countries; it is found in the high northern latitudes in immense numbers; ships are purposely fitted out for its capture, the oil produced by the animal, together with its skin, render it (connected as it is with the whale fishery) important to the trader, and interesting to the naturalist. The skins are salted and packed in casks, in which state they are sent to this country; they are then sorted and selected

for various purposes; those suitable for leather pass into the tanners' hands, and make a beautiful leather, which is used for ladies' shoes. The blue back, the hair, and the silver seal, are dressed and used in their natural state, and also dyed and exported in large quantities. The fur seal, the supply of which is always small compared with the other kinds, undergoes a process to prepare it for its intended use. It is brought at the present time to a great degree of perfection in this country; when divested of the long coarse hair (which protects it in its native element) there remains the rich, curly, silky, yellowish down, in which state it was formerly used for travelling caps and other purposes. It is now seldom made use of in that state, but dyed a beautiful Vandyke brown, giving it the appearance of the richest velvet, and is manufactured, in every variety of shape and form, as articles of dress for ladies, gentlemen's and children's wear.]

The dressing, preparing, and unhairing, has been effected by Mr. Collins, Earl-street, Finsbury Square.

South American.

- 70. Group of chinchilla, Buenos Ayres (*Chinchilla lanigera*).
- 71. Group of chinchilla, Arica (*Chinchilla lanigera*).
- 72. Group of bastard chinchilla or Lima (*Chinchilla lanigera*).

[The chinchilla is exclusively a South American animal, and was introduced into this country and France about forty years since.]

From the Tropics, &c.

- 73. Group of lions (*Felis leo*).
- 74. " royal tigers (*Felis tigris*).
- 75. " Cape tigers (*Felis leopardus Africanus*).
- 76. " leopards (*Felis cupurdus*).
- 77. " panther (*Felis onca*).
- 78. " cheetah.

[In China, the mandarins cover the seat of justice with the tiger. In this country the collocation of the leopard under the officer's saddle is a distinguishing mark, adopted by some of Her Majesty's cavalry regiments. In Austria, the small sinu leopard is worn as a mantle by the Hungarian noblemen, who exclusively form the royal imperial body guard.]

- 79. Group of zebra (*Equus zebra*).
- 80. " antelope (*Antelope oryxotragus*).
- 81. " black in inkoy (*Antelope uranias*).
- 82. " ant eater (*Myrmecophaga jubata*).
- 83. " moose deer (*Cervus alces*).
- 84. " deer.
- 85. " Australian (*Dasyurus vicerrinus*).
- 86. " Indian ground squirrel (*Sciurus palmarum*).
- 87. " flying squirrel (*Sciurus pelivrus*).
- 88. " Angora goat (*Capra hircus*).
- 89. " dyed Angora goat, various.

[The Angora goat is produced in large numbers in Asia Minor, and is remarkable for its long, curly, rich, white silky coat; it was formerly a most costly article of ladies' wear, but is at the present time of little value. It is dyed, and takes some of the most beautiful and brilliant colours. It is made into beautiful rugs for drawing-rooms, carriages, &c.]

- 90. Group of beaver, prepared by a new process.
- 91. " beaver, dyed.

Exhibited to illustrate an entirely new method of preparing the beaver, and adapting it for general use. Dressed and cut by Messrs. Lee & Son, Southwark.

92. Group of un-haired or pulled dyed otter.

[The pulled otter is manufactured by having the external or long hair pulled or stripped off, leaving the soft, fine wool or down underneath; it is then dyed.]

93. Group of dyed lynx, see No. 8.

94. " penguin (*Spheniscus cristodotes*).95. " grebe (*Podiceps aptata*).

[The grebe is an aquatic bird, inhabiting most of the large lakes in Europe. The choicest specimens are from Geneva, Italy, and Holland. The feathers are of rich white, having the appearance of polished silver, the plumage on the outer edge of the skin being a rich dark brown; it is used by ladies, and forms a beautiful article of dress; and is worn as trimmings for the trains of court and drawing-room dresses, for muffs, cuffs, boas, &c. It is very durable; the exquisite smoothness of the feathers prevents its soiling with wear.]

96. Specimen of swan feathers.

97. " goose feathers.

98. " eider down.

[The bird from which the down is taken is found in large numbers in Iceland, Norway, Sweden, &c., its colour is dark grey, and its elasticity, lightness, and resistance to wet, are prominent amongst its other advantages; it is used for the inside stuffing of muffs. On the Continent, the well-known eider-down quilts are largely used.]

99—115. Suits of Russia sable; Hudson's Bay sable; sable tail; mink; chinchilla; grebe; sea otter; Siberian squirrel, with tails; kolinski; minever; ermine; moleskin; natural beaver; dyed beaver; seal; swan; goose down.

[The down of the goose is manufactured by being sewn on textile fabrics. It is a specimen of Irish industry, and has been patronised and sold in England extensively for the benefit of the Irish female poor, by whom it has been made up. The price, compared with the true swans-down, is very moderate. Being sewn upon cloth, it can be washed.]

116. Suit of English silver-grey rabbit; presented by Her Grace the Duchess of St. Albans.

117. Suit of black monkey.

118—149. Fur seal pardessus, dyed; paletot; paletot, trimmed sable; paletot, trimmed mink; paletot, trimmed minever; paletot, trimmed grebe; cloak, lined and trimmed ermine; child's ermine paletot; child's seal paletot, trimmed minever; child's seal paletot, trimmed mink; Polish envelope; child's paletot; child's jacket; gentleman's coat; young gentleman's coat; waistcoat, double-breasted; waistcoat, single-breasted; lady's bonnet; gentleman's stock; lady's hood; gentleman's coat, natural colour; waistcoat, single-breasted, natural colour; waistcoat, double-breasted, natural colour.

141. Tartan foal-skin, lady's pardessus; new design.

142. " gentleman's coat "

143. " waistcoat "

144. Mink lady's pardessus.

145—149. Gentleman's coat, lined fur seal; lined sable, throat or gill; lined genet; lined genet; lined North American grey fox.

150. Gentleman's shube, lined racoon.

151. " lined black bear.

152. Gentleman's coat, lined and quilted eider down.

153. Fur gloves, ladies' and gentlemen's.

154. Fur boots and shoes, ladies' and gentlemen's.

155. Fur travelling caps, ladies' and gentlemen's.

156. Fur coverings for open carriages and sleigh purses.

157. Buffalo robes or skins.

[The buffalo is killed in immense numbers by the North American Indians, solely for the tongue, the skin, and

the bosses; they have a peculiar method of dressing the skin with the brains of the animal, in which state it is always imported. It has of late years been much used in Europe.]

157. Carriage wrappers:—North American grey fox, various, outside of waterproof cloth.

158. Carriage wrappers:—Black African monkey, outside of waterproof cloth.

159. Carriage wrappers:—African antelope, outside of waterproof cloth.

160. Carriage wrappers:—North American black bear, outside of waterproof cloth.

161. Carriage wrappers:—Foreign and English cat, various, outside of waterproof cloth.

162. Carriage wrappers:—Silver-grey English rabbit skin. The skins presented by the Duchess of St. Albans.

163. Cloth travelling bag, lined and trimmed bear

164. " lined grey fox.

165. Fur table-covers, various.

166. Cigar-cases, mounted in fur.

167. Silver seal game bag.

168. Fancy chair, covered with silver seal.

169. " covered with silver seal.

170. " covered leopard.

171. " covered natural fur seal.

172. Library chair, covered zebra.

173. " covered zebra.

174. North American fox foot ottomans, mounted on black bear.

175. North American fox, mounted as ornamental mats, rugs, &c.

176. Foot muffs, various.

177. Cloak and coat linings, various.

178. Ladies' needlework, mounted in fur; unique.

179. Models of muffs, various.

180. Rein-deer hoofs and mitts, specimen of Canadian Indian embroidery and fur; presented by the Marquis of Worcester.

181. Eider-down quilt.

182. Swan-down puffs.

Specimens of natural history, set up to illustrate the various skins.

183. Lions, furnished for the Exhibition by Mr. Meyer.

184. Group of leopards, by Zoological Society.

185. " ocelots, by Zoological Society.

186. Arctic wolf, by Hudson's Bay Company.

187. Arctic blue fox, by Hudson's Bay Company.

188. Group of beavers, by Hudson's Bay Company.

189. " otters, by the Marquis of Worcester.

190. " polecats, by Earl Nelson.

191. " fox, by Marquis of Worcester.

192. " grebes, by Marquis of Worcester.

193. " musquash, by Hudson's Bay Company.

194. Ornithorhynchus, by Mr. Ellis.

195. " lynx, by Hudson's Bay Company.

196. Javanese musk deer.

197. Group of antelopes, by Zoological Society.

198. " perewaitzka, by Zoological Society.

199. White stone martin, by Mr. George Smith.

200. White Siberian squirrel, by Mr. George Smith.

201. European hare and Polar white ditto.

202. Head and fore paws of royal tiger, of great size and beauty.

203. Model of Peerece, in her coronation robes of estate.

204. Ladies' cloaks, lined squirrel lock, trimmed with grey Siberian squirrel with tails.

205. Lady's walking paletot, lined fur.

206. Lady's travelling cloak, lined fur.

207. Muff and boa, made of the down from the feathers of the bird called the egret. The costly nature of the material is such, and its rarity so great, that three other sets only have been made during the last century, the possessors of which are imperial and royal personages. Manufactured by Mons. Ray, of Paris, for the exhibitors.

208. Group of Russian sables.

209. English badger, by the Marquis of Worcester.
210. Group of heads, rare specimens from Central Africa, by Captain Bates.

(See Main Avenue West.)

302 POLAND, SON, & MEREDITH, 52 Bread Street, Cheapside—Designers and Manufacturers.
Leopard hearth-rugs.
Rugs: miniature tigress, with two cubs.

303 SAMSON, PHILIP, 1 Little Knight Rider Street, St. Paul's Churchyard—Manufacturer.
Fur articles, embroidered in chenille, &c., in floral and figured designs. Fur collar. Fur and imitation-fur elastic cuffs.

304 MEYER, S. & M., Bow Lane, City—Manufacturers.
Dressed, dyed, pulled, and sheared English rabbit-skins; riding boas, muffs, cuffs, cardinals, round boas, caps, and gloves.

305 ELLIS, GEORGE, 23 Fore Street—Designer and Manufacturer.
Boas, victorines, muffs, and other articles in fur and velvet.

306 DRAKE, R., 25 Piccadilly—Manufacturer.
Russia sable, spotted ermine, and grebe muffs.
Pieces of the spotted ermine lining of the Queen's coronation robes; also of King William the Fourth's, and of King George the Fourth's.
Astracan lamb's skin: the paws are used for spotting the ermine lining of coronation robes.

307 CLARKE, ROBERT, & SONS, 157 Cheapside—Manufacturers.
Manufactured furs of ermine and mink; cardinals, muffs, boas, cuffs, and gauntlets; the same of musquash, natural and dyed.

308 CALLOW, T., & SON, 8 Park Lane—Inventors and Manufacturers.
Riding whips, of clarified rhinoceros hide, in various colours.
Riding and driving whips, with the handle of hippopotamus leather, enamelled green.
The rhinoceros whips and the hippopotamus leather are stated to be invented and made by the exhibitors.

309 INCE, J., 75 Oxford Street—Manufacturer.
Royal tiger-skin rug, mounted with black bear.
Two coronation ermine muffs, constructed upon a new and improved principle. One is inflated with air, which can be immediately discharged, and the muff compressed to the most portable size, when not required for use, the other folded up.

310 LUTGE & PARSONS, King Edward Street—Manufacturers.
Registered Princess Royal, in Russia sable, American sable, mink, ermine, minever, chinchilla, squirrel, and seal boas.

A large rug, with a very rare skin in the centre, between a leopard and tiger, surrounded by the Royal Arms, H.R.H. Prince Albert's Arms, and H.R.H. Prince of Wales's Feathers; all worked in furs.

310A SMITH, GEORGE, & SONS, 10 Watling Street—Manufacturers.
Muffs, cardinals, flat boas, riding boas, cuffs, &c., in a variety of furs, including Russian sable, Hudson's Bay and Canadian martin or sable, sable tail, Russian squirrel, Siberian squirrel, chinchilla, and fitch.
Specimens of the same, dyed.

311 DICK, A., 35 Georges Street, Edinburgh—Manufacturer.
Fur hearth-rug, worked with upwards of 2,500 pieces from different furs, comprising martin, sable, British

sable, real ermine, imitation ermine, squirrel, kolih &c.

312 GARNER, D., 41 Finsbury Market—Manufacturer and Designer.
Registered portable boot-tree, adapted for button-b shoes, &c., and contains brushes, blacking, boot-he boot-powder, &c. Boot and shoe lasts.

313 HIDDEN, T., 88 London Road, Southwark—Manufacturer.
Leather buttons, with flexible shanks, on an impr principle, for boots, shoes, and wearing apparel.
New leather beads of various colours.

314 CORRY, J. & J., Queen Camel South, near Sherbourne—Producers.
Specimens of kid and lamb leather, carried.

315 CASE, CHARLES, 45 Wood Street, Cheapside—Manufacturer.
Ladies' and gentlemen's riding whips of black white twisted whalebone.
Gentlemen's walking-sticks, of black knotted w bone.
Gig whips, knotted and plain, with silver mounting

316 MARSDEN, C., Waterloo House, Kingsland Road—Inventor.
Patent ventilating boots and shoes.

317 LEATHART, CHARLES, 15 John Street, Waterloo Ro Inventor.
Liquid hair dye. The effect of the dye illustrated i wig, in a case, containing four shades of hair.

318 TAYLOR, T., Dublin—Inventor.
Specimen of soluble leather.

319 PHIPPS, W. D., Cadogan House, Sloane Street—Inventor.
The Eupadian registered elastic spring boots.

320 HADLEY, R., 72 High Street, Worcester—Improver and Manufacturer.
Ladies' ornamental hair, in fronts, bands, curls, plaits.

321 MANTEL, W., Bedford—Designer and Manufact Three improved wigs, and lady's head-dress.

322 CARR, WILLIAM, 10 Hatton Wall—Manufacture Improved premier blacking.

323 NEWCOME, J., Swinegate, Grantham—Inventor.
Shoes made from a new material.

323A ADCOCK & Co., 3 Princes Street, Cavendish Squa Producers.
Choice collection of dyed feathers.
(Main Avenue West.)

324 NELSON, J., Holloway—Inventor.
Boots warranted to wear in the centre of the sole.

325 CARRON, W., Birmingham—Inventor.
Patent clogs.

326 ESSEX, J., 1 Charterhouse Lane, St. John Street—Manufacturer.
Fancy lamb and sheep-skin wool rugs for hearths, riages, &c.
Carriage feet muffs; and travelling and invalid w boots.

327 ALLIN, W. S., 1 Dorset Meus, East Baker Street Producer.
Pair of boots.

328 LUTON & Co., King Edward Street—Manufacturers.

Royal boas in Russian and American sable, mink, ermine, miniver, seal, and chinchilla.

Large rug with rare skin in centre, surrounded by the royal and other arms.

329 BOWER, M., Birmingham—Manufacturer.

Patent screen saddle, or gig-pad, by which a horse's loins can be covered or uncovered while standing, by a pair of reins which lay over the dash-board.

330 LAYCOCK, S., & SONS, Porto Bello Place and Mill Sands, Sheffield—Manufacturers.

Specimens of damask and striped hair-seating, various colours; plain satin and linen warp, black, and cotton warp, black.

Russian horse-hair, white; South American, black

Materials used in the manufacture of hair seating.

In these specimens a variety of damask patterns or designs are introduced, by the application of the Jacquard loom, and also a diversity of colours.

[Formerly the warps for hair-seating were made exclusively of linen yarn, but of late years cotton has been extensively used, chiefly for export to the United States, on account of its softness, as it produces cloth of a more pliable texture, and of smoother and more even surface, and considered better suited to the purposes of tufting than the fabric made from linen yarn.

Horse-hair suitable for making coloured seatings must

be pure white; it is afterwards dyed of various colours, and of this there is only a limited supply. Some difficulty might consequently arise in procuring the raw material.

Hair-seating is woven by hand, every hair being introduced singly. It differs in this respect from most other woven fabrics, in which there is a uniform and continuous supply of material, thereby permitting the application of steam-power. In hair-seating, the web being in detached pieces, it has been found that power-looms cannot be advantageously employed.]

(Placed in Class 11.)

331 McDougall, D., Inverness—Producer.

Highland stalking boots; and dress shoes.

332 BEVINGTON & MORRIS, King William Street, City—Manufacturers.

Sheep-wool mats and Angola goat-mats, in great variety, plain and fancy, for hearth-rugs, carriages, and doors, &c. A variety of furs in cardinals, muffs, boas, riding-boas, and cuffs, both natural and dyed.

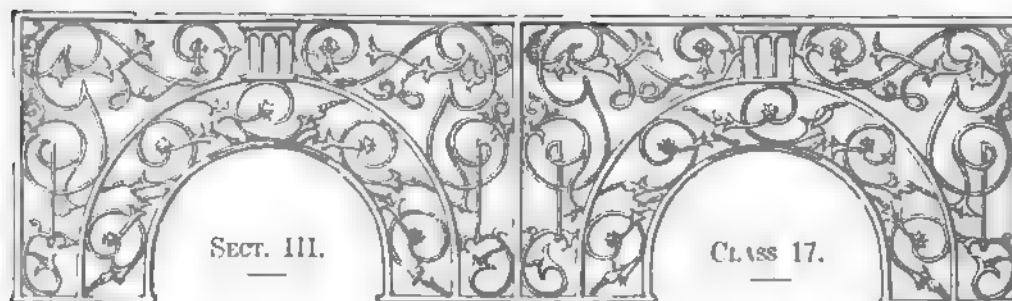
334 WORSLEY, JOSH., 31 Sunderland Street, Macclesfield.

A pair of shooting-boots of extraordinary manufacture.

335 NEVILL, Major—United Service Club—Proprietor.

A jacket made from the skin of a stag shot at Eridge Park.





PAPER, PRINTING, AND BOOKBINDING.

INTRODUCTION.

PAPER of every description, printing and bookbinding, with the miscellaneous articles connected with correspondence, and useful and ornamental stationery, form the subjects of the present Class. The manufacture of these articles—ministering not to the personal or domestic wants of mankind, so much as to their intellectual requirements—is one the annual increase of which is coextensive with the diffusion of knowledge. And it may be truly said, that, morally and intellectually considered, the present Class relates to a species of industry exercising indirectly a more extensive influence over social economy than any of those into which this Exhibition has been subdivided. Books, it has been said, carry the productions of the human mind over the whole world, and may be truly called the raw materials of every kind of science and art, and of all social improvement. The Sub-Classes are as follows:—A. Paper in the raw state as it leaves the mill, such as Brown Paper, Millboards, Printing, Writing, and Drawing Papers, &c.; B. Articles of Stationery, as Envelopes, Lace Papers, Fancy Papers, Ornamented and Glazed Papers, Sealing-wax, Wafers, Inks of all kinds, &c.; C. Pasteboards, Cards, &c.; D. Paper and Scaleboard Boxes, Cartounerie, &c.; E. Printing, not including printing as a fine art, and Printing Inks and Varnishes; Bookbinding in cloth, velvet, vellum, &c.; Fancy Books, Portfolios, Desks, &c.

The position occupied in the Building is in the North side of the Western Main Avenue; and the Areas included are F. 27 to 29, G. H. I. J. 26 and 27. Rather more than 200 exhibitors appear to represent this Class in its various branches of industry.

The localities from whence the articles exhibited have been sent are much less restricted than in preceding Classes. Many of the exhibitors appear in the capacity of producers of small articles for fancy purposes; and as these are obviously capable of being made at home, requiring taste and minute skill rather than mechanical power for their manufacture, the places from which they have been forwarded for exhibition have not the special interest attaching to great producing towns or cities, where thousands of machines and operatives are all occupied in one department of manufacture. From the metropolis, however, where a large demand for such articles exists, the great proportion of them are derived. London also represents most largely the enormous printing resources of this country. But of these, as specimens only of single works can appear, but a faint idea can be gained from the examples exhibited. In one of the greatest establishments of the Metropolis twenty machines are constantly occupied, each of which is capable of throwing off from 3,000 to 4,000 impressions per hour, and in addition a large number of printing machines for fine work are employed. These great printing establishments resemble very closely the large manufactories of other districts, only their organization differs with the peculiar nature of the manufacture, if the mechanical production of printed books may be so termed.

Paper, more legitimately reckoned among manufactures than printing, has a certain limitation to districts for particular kinds. Considerably more is made in England than in Scotland or Ireland. Kent is celebrated for its fine writing and drawing papers. From Lancashire, Berkshire, Hereford, and Derbyshire, papers of various kinds are supplied. The quantity of paper annually manufactured in England two years ago amounted to 132,132,657 lbs.; in 1834, it was little more than half that quantity. In 1839, it was estimated that the quantity used, if equally divided among the population, would have been about three pounds and three-quarters for each individual.

A variety of mechanical improvements, both in the production of paper and in that of printed books, has been introduced of late. In the manufacture of paper the substitution of machine for hand labour has been attended with the most momentous results. In 1801, the price of a ream of paper of a particular description was 36s.; in 1843, the same paper could be purchased for rather less than half this sum. In 1721, it is estimated that 300,000 reams of paper were annually produced in Great Britain. In 1841, 97,105,550 lbs. were made in the United Kingdom: the total annual value is at present not far short of two millions sterling. Much of the increase thus exhibited is due to the introduction of mechanical power; but the fiscal regulations upon this branch of industry, which were formerly extremely oppressive, having been removed to some extent, another cause of increased production and consumption is thus superadded. Paper may, however, be likewise regarded as a chemical product, as it is certain that a large amount of chemical knowledge has been successfully combined with mechanical skill in its preparation. By the co-operative forces of chemical processes and mechanical instruments, the most refuse matter thus becomes converted into a white and pure material. As an evidence of the enormous length of paper produced by mechanical power, two great rolls are exhibited—one is 750 yards long, the other 2,500 yards in length.

The application of improved machinery to printing is also of recent date, and has been attended with results of great moment. Progress is still made in this direction, and in a preceding Class will be found a more detailed account of the introduction of an entirely new principle in printing (the vertical), the application of

which for the rapid multiplication of newspapers is extending. By this arrangement, the vertical, the power of production is only limited by the size of the machine.

Among many interesting specimens of typography, those which exhibit the production of books in other tongues, by type cast in England, will attract notice. The Holy Scriptures are exhibited in one hundred and fifty different languages—a noble evidence of the highest application of industry to the enlightenment and welfare of mankind. Beautiful specimens of the bookbinder's art are likewise shown.

An envelope-folding machine, placed at the side of the Main Avenue, is a striking instance of the successful application of mechanical movements to the performance of the most delicate and complicated actions. By this machine, which would in strictness appear to belong to a preceding Class, the movements of the hand of the folder are not only exactly imitated, but the result is more accurate and certain, and the power of production is very largely increased.

The peculiar interest which attaches to the objects in this Class, as the most powerful agents in the social and intellectual improvement of man, cannot fail to be awakened by the most casual inspection. Paper, printing, and bookbinding, are, however, only the raw material, the application and reproduction of which is dependent upon the powers of the mind, not on those of matter.—R. E.

1 ACKERMANN & Co., 96 Strand—Producers.

Ornamental colour box, containing 100 cakes of colours and requisites, enamelled in gold and colours.

Imperial scrap books and other articles of stationery and ornament, including envelope cases, seaweeds, pole-screens, &c.

Odoriferous lighters, for conveying flame to candles, lamps, tapers, cigars, &c., and by an ambrosial and sanitary perfume, refreshing the atmosphere.

Specimens of water-colours on alabaster, by E. Sant, Paris.

4 HUGHES, EDWARD, Greenwich Hospital Schools—Designer.

An improved map of the British islands, on a scale of $\frac{1}{100,000}$ of the natural size, exhibiting their physical features and political divisions; also their pastoral, agricultural, mining, and manufacturing districts and fishing stations, with the population, and industrial occupation of the inhabitants.

Map of Palestine and adjacent countries, exhibiting their physical features, and illustrating the political geography of scripture narrative.

5 REMNANT, EDMONDS, & REMNANT, Lovell's Court, Paternoster Row—Manufacturers.

Books bound in various styles of Morocco, Russia, calf, man, sheep, and cloth.

7 HAWTHORNE, JAMES, 77 Charrington Street, St. Pancras—Manufacturer.

An assortment of inks for writing, copying, marking on linen, &c., with specimens of their effect.

Specimens of nut-galls, broken and whole (*Quercus ilex*), and of the fruit of the *Terminalia Chebula*, from Bengal.

8 EVANS, JOSEPH S., 64 Bernick St., Soho—Manufacturer.

Specimens of bookbinding in vellum, illuminated, &c. Bookbinding in leather stained by hand, in imitation of various woods, and washable.

Improved binding for account books.

9 FAIRBAIRN, ROBT., 37 Great Cambridge St., Hackney Rd.—Manufacturer.

Specimens of wood type for printing, &c.

10 FISHER, JADEZ HENRY, New North Road, Hoxton—Inventor.

Specimen of a bank note for the prevention of forgery, printed in a chemical water-colour, from a steel-plate engraving, the process producing two colours at one operation: the lettering in black, and the ornamental background in a neutral tint. Any signature upon this note cannot be erased without changing the colour. The letter-press on the note cannot be transferred or copied, and is printed on a prepared paper.

11 GALLARD, W., 30 Lisson Grove—Designer.

Portable composing frame, to provide temporary accommodation for cases at the imposing stone during correction of proofs, or for extra cases near the compositor's

frame for work, that has a mixture of italic or other letter with that of the text.

12 GILL, THOS. DYKE, 27 Charlotte Street, Fitzroy Square—Inventor.

Postage stamp expedient, for saving time, &c.

14 BINNS & GOODWIN, Bath—Publishers.

Natural illustrations of the British grasses; illustrated with sixty-two real specimens.

17 HIDER, ELIZABETH, 15 Manor Place, King's Road, Chelsea—Designer and Manufacturer.

Fancy floral paper for valentines.

18 DEAN & SON, 35 Threadneedle Street—Producers.

Ornamented and illustrated letter and note paper.

19 STIDOLPH, —, 2 New Bond Street, Bath—Inventor.

The chiragon, a hand guide for blind and tremulous writers. Its advantages are straightness, equidistance, simplicity, and freedom.

20 HUGHES, G. A., 9 Mount Row, Westminster Road—Inventor.

Machine for enabling persons born blind to write in raised characters without using types. This system is well adapted for writing French, as all the accents can be faithfully represented.

Machine to write with pen or pencil in skeleton Roman capitals, which can be read by blind persons as well as by those gifted with sight.

Machine to cast accounts and make general arithmetical calculations by tangible characters.

Machine to copy and compose music on paper. The inventor is himself wholly blind.

Stenographical treatise.—Embossed.

First-class book and writing lessons.—Embossed.

Musical notation; reading alphabet, with examples.—Embossed.

21 HYDE & Co., 61 Fleet Street—Manufacturers.

Sealing-wax, in combination with Rider's new mode of taking impressions from stone, metal, and composition intaglios.

Solid India sealing-wax, made hard expressly for use in hot climates.

22 KING, THOMAS & J. H., 4 Bartlett's Buildings, Holborn Hill—Designers and Manufacturers.

Specimen of a new type-music, in which the various pieces are combined on an improved principle, and very few kerned types are required; accurate in its composition, and equally adapted for simple or complex music. The same combination, with a new form of note. Series of chant-music. Original design of a series of letters, called arabesques.

[There are two kinds of music type in use; in one, the complete note is cast in one solid piece, and in the other (the kerned description) it is made up of five different

pieces. Music type varies in size, the smallest being called minikin.—H. E. D.]

23 KIRBY, JOHN, 103 Cornwall Road, Lambeth—Producer.

Specimens of split paper, and improved method of mounting woodcuts, for illustrating books, framing, and other purposes, and for their better preservation.

[The method of splitting paper of the thinnest texture is extremely simple. Two pieces of calico are firmly cemented on the sides of the paper, and dried. By a gentle pull on each side, the paper splits into halves, one of which adheres to the calico on one side, and the other to its opposite—the adhesion between the paper and the calico being greater than that of the surfaces of the paper to each other. The split portions may then be removed by damping, and so loosening the paste between the calico and paper. A bank-note, although of extremely thin texture, can in this way be separated into two halves, on one of which remains the impression of the plate, while the other is blank.—R. E.]

24 LEIGHTON, J. & J., 40 Brewer St., Golden Square—Producers.

Specimens of bookbinding and processes connected with it, from designs by Luke Limner; produced by hand.

King William the Fourth's royal Bible, bound in morocco by the exhibitors, from a design by Luke Limner. Of this splendid edition, the first proof sheet was struck off by his late Majesty. The sides are ornamented with royal emblems, &c., and the clasps composed of cables and anchors, in honour of the sailor king. The back, end, and fore-edge, are shown in reflectors at the Exhibition. This Bible is represented in the accompanying Plate 44.

Specimen of mending and fac-simile; portions of this leaf having been destroyed, the paper is joined and the printing restored with a pen. Imitation of old Spanish printing, done with a pen, in imitation of Faxardo's type, of Seville, about the middle of the seventeenth century, being the suppressed "prologo" to that exceedingly rare book, "Arte de la Pintura por Francisco Pacheco," taken from Cean Bermudes, and got up to match the book.

Specimen of anastatic printing, from letter-press; also photographs, from copper-plates; for completing rare imperfect books.

Specimens of paper from which ink and other stains have been in part extracted.

Specimens of split paper, useful for removing letter-press from the backs of engravings and wood cuts.

Bright gold margin lines, applied to picture mounting.

Eight examples, showing the process of binding a book.

Blotting-books ornamented with the commemoration shield of the Great Exhibition, in electrotypes, by Elkington. This shield is shown in the accompanying cut.



Leighton's Commemorative Shield of the Great Exhibition.

25 LLOYD, R., 26 Birchin Lane—Inventor, Patentee, and Manufacturer.

Specimens of sheet cork, manufactured and cut by machinery, intended for back-boards and interleaves of books, the backs of paintings, engravings, and pictures

when framed; also for the lining of libraries, cabinets, cases, records, plate, jewelry, and in such other purposes as where mildew, insects, damp, and variable climates are likely to produce prejudicial effects.

26 MACOMIE, ALEXANDER, & Co., 6 Percy St., Bedford Sq.—Manufacturers.

Specimens of pulpit, family Bible, and other binding, and table clock case.

Gottfried Weber's "Theory of Musical Composition," 2 vols., 8vo, edited by John Bishop; exhibited as a specimen of bookbinding, and of letter-press and music printing by moveable types; also an illustration of the several industrial arts employed in its production.

27 MANSELL, JOSEPH, 35 Red Lion Square—Designer, Manufacturer, and Proprietor.

Specimens of ornaments used for decorating linens, muslins, damasks, brown Hollands, woollen cloths, &c. Embossed and perforated Bristol boards for drawings, and illuminated for show cards, &c. Paper embossed, and in imitation of lace, &c., and other ornamental stationery. Envelopes and cards, embossed in silver.

29 MARTIN, J.—Patentee.

Waterproof paper, rendered so by a newly-invented kind of size. The paper manufactured by Mr. Pearson, Braithwaite, Cumberland.

31 PARSONS, FLETCHER, & Co., 22 Bread Street—Manufacturers.

Printers' inks.—Black, for wood-cuts, book-work, newspapers, and posting bills. Coloured, for printing placards, &c.

32 PENNY, H., 11 Old Bailey—Manufacturer.

Metallic pocket-books, with pencils composed of various metal. The writing cannot be obliterated by the friction of the leaves, or by the use of India-rubber.

33 PINCHES & Co., 27 Oxendon Street—Manufacturers.

Illuminated note paper, and envelopes of various heraldic kind of size. Specimens of stamping in relief on envelopes and paper; of stamping in surface or cameo; and of the registered purse envelope.

W. Smith's improved stamping press.

Medal dies, with the collars and tools used in the manufacture of medals, including a matrix and punch.

Button dies, and military ornament dies.

Various impressions from dies and seals.

Registered chessmen, in Jennens & Bettridge's papier maché, gold and silver. Alphabet, in papier maché and metal.

34 ROYSTON & BROWN, 40 and 41 Old Broad Street—Manufacturers.

Specimens of ledgers, journals, and cash books, in various bindings. A book of prepared copying paper, bound in morocco, with index, and paging; made with lock and key, for a copying press. A book of short guards, made of adhesive paper, for securing the copies of letters, or other documents.

35 SAPSFORD, NEWMAN, 17 Kirby Street, Hatton Garden—Manufacturer.

Specimen of book-binding.

36 SAUNDERS, T. H., Queenhithe, and Dartford, Kent—Manufacturer.

Strong parchment paper for government loans, shares in banks, railway mines, and public companies; also adapted for envelopes for foreign despatches, and a variety of other purposes.

Bank-note papers, plain and coloured, of strong texture, with a variety of water-marks, to prevent fraud.

Specimens of a new method of making papers with water-marks of an elaborate and complicated design.

White and coloured safety paper for bankers' cheques, letters of credit, &c., detecting the removal of writing by any chemical agent.

Glass transparency to show the water-marks in paper.

37 SAUNDERSON, C., Kilburn Lodge, Kilburn, Middlesex—Proprietor.

Map of Ireland, engraved on copper, by John Dower, showing the provinces, counties, cities, county and market towns, with distances from Dublin, &c. With two illustrations from drawings made expressly for the map, and engraved upon steel, by J. C. Armitage; contained in a wooden map-case, carved in ivy and shamrock leaf, with a centre shield, by George Howton.

The impressions from the steel plates are taken upon China paper and transferred to the spaces left on the map for their reception.

38 SCHLESINGER & Co., 8 Old Jewry—Inventors.

Registered metallic memorandum books, with newly invented flexible backs, in morocco, russia, and other materials, to admit many documents. Variety of portfolios, music-folios, wallets, and pocket-books, of the same construction. Patent letter-clips. Registered parallel rulers, by which paper is ruled either with ink or pencil, in a shorter time than with common rulers.

40 SILVERLOCK, H., 3 Wardrobe Terrace, Doctors' Commons—Designer.

Specimen of letter-press printing from stereotype plates of medallion engraving and machining, intended to combine the effect of copper-plate engraving with the cheapness and rapidity of letter-press printing.

41 SMITH, JEREMIAH, 42 Rathbone Place—Inventor and Manufacturer.

Adhesive envelopes (requiring neither wax nor wafer), and note and letter papers, embossed with emblazoned arms, crests, mottoes, initials, &c.

Dowse's patent tracing and writing cloth, for engineers, surveyors, architects, and others.

PAPERS.

[In the interesting collection of papers in the Exhibition, from various paper-mills, there are groups whose degrees of excellence must be estimated by very different standards; as, for instance, the brown wrapping and the fine hand-made drawing papers, the sugar and the fine printing papers, the bibulous plate paper for engravers' use, and the hard sized writing papers. Collectively it exhibits, at one view, the various qualities which are sought for by English consumers, and which, in many respects, differ from those required by our Continental neighbours; as an example, may be quoted the substantial English writing papers and the thin post papers of France and Belgium, whose different qualities arise from the difference of postal regulations in those countries.

The system of producing paper in continuous lengths by machinery was first introduced by Messrs. Fourdrinier into this country, they having purchased the patent right of Mr. Gamble, who, in 1804, obtained permission from the French Government to bring to England a model of a machine, invented in 1799, by Louis Robert, who was then employed in the paper works of Essonne. This machine of Mr. Roberts was essentially imperfect, but it was brought to a state of great perfection for Messrs. Fourdrinier, by the ingenuity of Mr. Bryan Donkin; upon this has been founded the various descriptions of paper-making machines which have since that time been introduced. They consist essentially of contrivances by which the paper pulp is made to flow on the surface of an endless wire web; a rapid up and down motion being given to it for the purpose of shaking the water out of the pulp, and thus producing a complete interweaving of the textile filaments. The continuous roll of paper thus formed is turned off upon a second solid cylinder, covered with felt, upon which it is condensed by a third, and eventually delivered to drying rollers.

Swedish filtering paper is made with pure water, and is more free from impurity than any other; thus is, in fact, pure cellulose, and yields only half a per cent. of ash on incineration. Laid papers are those with a ribbed surface; wove papers those with a uniform surface. Blue papers, under the microscope, no longer appear of uniform tint, on the contrary the particles of colour are seen widely separated.

In reference to the pulp in its various stages of preparation, it may be stated, that numerous attempts have been made to employ other fibres, besides those of cotton and flax, in the manufacture of paper, for instance, straw, hop-bine, grasses, refuse of sugar cane, wood shavings, &c.; and, although paper has been produced from these materials, yet, commercially, the attempts have been unsuccessful.

Subjoined are the principal sizes of writing paper in English inches, and in French centimetres, to the nearest millimetre, or tenth of a centimetre.

	Inches.	Centimetres.
Double elephant	40 x 26½	101·6 x 67·9
Atlas . . .	34 x 26	86·4 x 66·0
Colombier . .	34½ x 23½	87·6 x 59·7
Imperial . .	30 x 22	76·2 x 55·9
Elephant . .	28 x 23	71·1 x 58·4
Super royal .	27 x 19	68·6 x 48·3
Royal . . .	24 x 19	61·0 x 48·3
Medium . . .	23 x 17½	58·9 x 44·4
Demy . . .	20 x 15½	50·8 x 39·4
Large post . .	21 x 16½	53·3 x 42·5
Small post . .	19 x 15½	48·3 x 39·4
Foolscap . .	16½ x 13½	41·9 x 33·7

W. D. L. R. and R. H.]

42 SPICER BROTHERS, New Bridge Street, London—
Wholesale and Export Stationers.

Writing Papers.

Large cream laid post, various thicknesses.
Large yellow wove post, various thicknesses.
Large blue laid post, various thicknesses.
Large blue wove post, various thicknesses.
Small cream laid post, various thicknesses.
Small cream wove post, various thicknesses.
Small yellow wove post, various thicknesses.
Small blue laid post, various thicknesses.
Medium wove post, various thicknesses.
Large wove bank post, various thicknesses.

Paper for Account Books.

Superfine laid imperial, various thicknesses.
Superfine laid royal, various thicknesses.
Superfine laid demy, various thicknesses.
Superfine laid foolscap, various thicknesses.
Superfine wove foolscap, various thicknesses.

Printing Papers.

Superfine demy, various thicknesses.
Superfine royal, various thicknesses.
Superfine double demy, various thicknesses.
Superfine double foolscap, various thicknesses.
Superfine double crown, various thicknesses.
These are used for ordinary printing purposes, from the most costly folio, down to the cheapest tract.
Fine laid news, various thicknesses.
Fine wove news, various thicknesses.
These are exhibited of different sizes, as well as thicknesses, for newspaper purposes.

Papers for various purposes.

Fine long elephant, 23 inches wide, in a sheet of 750 yards in length.

Fine double elephant, 46 inches wide, in one sheet of 2,500 yards in length, for paper staining, decorations, and artistic purposes.

Long elephant, 23 inches wide, in sheets of 12 yards, for paper-hangings, of various qualities.

Brown papers of various sizes and thicknesses, made from pure rope, and especially intended for packing purposes.

A sheet of brown paper, 93 inches wide, 420 feet long.

[The introduction of machinery into the manufacture of paper alone could have produced a continuous sheet of the immense length and breadth described. In the processes by which machine-paper is made, there appears no more difficulty, in consequence of the continuity of the manufacture, in making a sheet of an indefinite length, than in making one of a few feet, and if a supply of pulp could be furnished, the machine might produce a continuous sheet sufficiently long to encircle the world.]

Buckinghamshire and Scotch millboards, for book-binding, portfolios, trays, waiters, or japanned goods, trunks, steam-pipe joints, boxes, cases, gun-wadding, &c.

42A JOYNSON, WILLIAM, St. Mary Cray—Manufacturer.

Extra Superfine Writing Papers.

Large blue wove post, 22 lbs. per ream.
Large blue wove post, 19 lbs. per ream.
Large blue wove post, 17 lbs. per ream.
Large blue laid post, 22 lbs. per ream.
Large blue laid post, 19 lbs. per ream.
Large bank post, 5½ lbs. per ream.
Large bank post, 7 lbs. per ream.
Large bank post, 10 lbs. per ream.
Medium bank post, 8 lbs. per ream.
Large cream laid post, 19 lbs. per ream.
Large cream laid post, 22 lbs. per ream.
Small cream laid post, 17 lbs. per ream.
Small cream laid post, 20 lbs. per ream.
Small cream laid post, 24 lbs. per ream.
Small cream laid post, 25 lbs. per ream.
Small blue laid post, 17 lbs. per ream.
Small blue laid post, 19 lbs. per ream.
Blue laid foolscap, 15 lbs. per ream.
Cream laid foolscap, 15 lbs. per ream.

43 TARRANT, ALFRED, 120 High Holborn—Manufacturer.
Specimens of bookbinding.

44 THOMAS & SONS, 20 Cornhill—Manufacturers.

Ledgers, atlas folio, and private ledgers in various sizes and bindings.

45 TURNBULL, J. L. & J., Hyllywell Mount, Shoreham—Manufacturers.

London drawing-boards, one composed of three sheets of paper, and one of ten, hand-made. Royal drawing boards, rough and smooth surface. Coloured crayon-boards, royal size, rough and smooth surface. Direction cards.

46 WATERLOW & SONS, 66 London Wall—Manufacturers.

Complete set of account books, with patent backs. Numerous articles of general stationery.

47 WEDGWOOD, RALPH, 84 Lombard St.—Manufacturer.

Patent manifold writer, for copying letters, invoices, drawings, plans, &c.

Improved noctograph, with barred frame. Royal desk noctograph. By these inventions, persons who have lost their sight are enabled to correspond with their friends with facility, without other aid. Registered desk clip.

48 WESTLEY, JOSIAH, Playhouse Yard, Blackfriars—Manufacturer.

Specimens of antique and modern bookbinding, in morocco, russia, calf, and cloth, also appropriate designs, produced by hand and machine, with black decorations by Luke Linner, Esq. One of these specimens of antique binding is exhibited in the adjoining Plate 85.

49 **WHITAKER, ROBERT**, 13 and 14 *Little Britain*—
Manufacturer.

Playing-cards, the backs enamelled and ornamented in gold and colours.

51 **WHITEMAN, F. J.**, 19 *Little Queen Street, Holborn*—
Manufacturer.

Specimens of improved perforated plates, for marking linen, and other articles with indelible ink.

Specimens of marking on satin, with permanent ink.

The plates are engraved and prepared by a peculiar process, and will not decompose any of the materials that may be used with them. (*In North Gallery, F. 18.*)

52 **WIDNALL, GEORGE FREDERICK**, 6 *Harrow Road, Pocklington*—Inventor.

Railway, omnibus, and toll-bar pocket-book and purse.

53 **WILLIAMS, JOHN**, 29 *Bucklersbury*—Manufacturer.
An assortment of ledgers.

55 **ARLIS & TUCKER**, 15 *Frith Street, Soho*—
Inventors and Manufacturers.

Exterior and interior views of the building for the Exhibition of 1851, showing the application of printing to tinfoil and other metallic substances.

56 **ATKINSON, WILLIAM**, *Lamb's Passage, Finsbury*—
Manufacturer.

Specimens of dyed and embossed calico, for bookbinding purposes.

59 **BATTEN, DAVID**, *Clapham Common*—
Manufacturer.

Guard books, and specimens of bookbinding.

60 **BENNER, DR. W.**, *B.A. Cheyne House, Collegiate School, Chelsea*—Inventor.

Complete phonological English alphabet, constructing self-pronouncing words with the proper orthography.

Mechanical syllabicator and model mechanical instructor.

61 **BINGLEY, MARK**, 10 *Lawrence Pountney Lane*—
Inventor and Manufacturer.

Patent headbands for bookbinding, made by machine, in lengths of several yards.

62 **BONE, WILLIAM, & SON**, 76 *Fleet Street*—
Manufacturers.

Specimens of bookbinding in cloth; and in cloth and morocco, showing the present state of the art.

63 **BOWDEN, G.**, 1 *Little Queen Street, Holborn*—
Inventor and Manufacturer.

Registered artist's economical desideratum, having, when closed, the appearance of a small, neat, flat case, with a light waterproof, or fancy leather cover; but when opened it will be found to contain an improved seat, with apparatus for holding the "desideratum," and the necessary requisites for an artist, either in sketching, oil painting, or water-colour drawing.

64 **BRETNALL, THOMAS DAVIS**—Manufacturer.

Patent paper cloth, made transparent for tracing maps, plans, engineering and architectural drawings, &c. In rolls of 100 yards long by 40 inches wide, without fold or joint. The same not transparent.

The surface is applied to and incorporated with the cloth during the process of its manufacture.

65 **CAHN, DAVID**, 16 *Wilson Street, Finsbury*—
Manufacturer and Importer.

Vine and ivory blacks, for copper-plate, letter-press, and lithographic printers, dyers, japanners, paper-stainers, and carriers.

66 **CANDY, T. H.**, *King's College, Strand*—Inventor and Proprietor.

Map of the globe, intended to illustrate a new method of terrestrial delineation. The peculiarity consists in all the meridians being of the same length, and all the parallels of latitude in their true proportion.

[The above map is drawn upon a modification of that which is termed the conical projection.—J. G.]

67 **CHURTON, EDWARD**, 26 *Holles Street*—Designer.

Specimens of bookbinding; each work ornamented according to the era or the subject of which it treats.

68 **CLARKE, J.**, 61 *Frith St., Soho Square*—Manufacturer.
Various specimens of bookbinding.

69 **CUSSONS & Co.**, 51 *Bunhill Row*—Manufacturers.

Bookbinders' cloth, dyed, embossed, and finished by the exhibitors.

71 **CLEMENTS, J.**, 21 & 22 *Little Pultney Street, Golden Square*—Inventor.

Material for bookbinding, or other purposes where plain or ornamental surfaces are required.

73 **COOKE & SONS**, 84 *Cannon Street*—Manufacturers.

Coloured, embossed, and transparent sealing-wax, with impressions.

74 **CRUCHLEY, GEORGE F.**, 81 *Fleet Street*—Designer.

A large map of England and Wales, consisting of 65 sheets, each 24 by 19 inches, at two miles to the inch (half the scale of the ordinary maps).

Maps of Europe and the world.

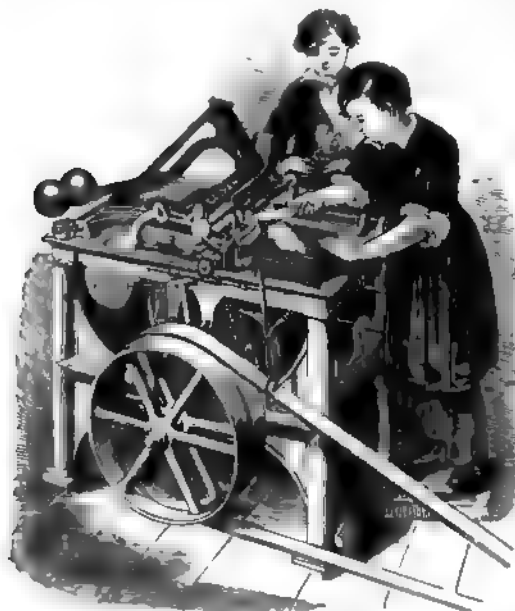
Map of London and environs, which illustrates to the extent of six miles round St. Paul's.

76 **DE LA RUE, THOMAS, & Co.**, 110 *Bunhill Row*—
Manufacturers and Proprietors.

Envelope-folding machine, invented by Edwin Hill and Warren De la Rue.

[The following is the action of this machine. The feeding-boy places the previously cut blank envelopes on to a small platform, which rises and falls in the rectangular recess formed by the cylindrical axes of the folders (shown open in the engraving); the bearings of the folders serving by their elongation to guide the envelope into its place at the moment of the small platform falling. A plunger now descends and creases the envelope by carrying it between the folder-axes, at the same time turning the flaps upwards in a vertical direction: the plunger, which descended as a whole, now divides into two parts, the ends rising and the sides remaining down to hold the envelope until the end-folders have operated; these latter turn over the flaps, the one on the right of the feeding-lad taking a slight precedence, and being closely followed by the gumming apparatus, which takes gum from an endless blanket working in a trough, and after applying it to the two end flaps, retires, at the same time the remaining half of the plunger moves upwards, to allow of the side folders turning over the remaining two flaps, the folder nearest the feeder taking precedence. During these operations, the end-folders have remained at rest, and the whole four open simultaneously. The taking-off apparatus, with its fingers tipped with vulcanized caoutchouc, now moves forward over the folded envelope, which is lifted upwards by the rise of the small platform and retreats with it, placing each envelope, as it is successively folded, under those which have preceded it. The envelopes are now knocked over on to an endless blanket, and

are conducted by it between two cylinders for a fine squeeze, and then rise in a pile up the trough, seen against the right arm of an attendant, who is represented in the engraving as fetching away the folded work. There is a provision in the machine by which the gummer is prevented placing gum upon the platform, in case the feeder omits feeding in an envelope. This machine works at the rate of 2,700 envelopes per hour, and although superseding hand-labour in folding, it is satisfactory to find that, instead of displacing hands, its introduction, by extending the consumption, has, in reality, created work for more than it has displaced.



Hill and De la Rue's Envelope Folding machine.

Although the fashion of using envelopes was common in France, and had been, to a small extent, introduced into England prior to 1838, yet their consumption was too insignificant to call forth any but the rudest mechanical appliances. It is to the stimulus created by the adoption in, 1839, of Mr. Rowland Hill's system of postage reform, and the consequent increased demand for envelopes, that their manufacture owes its rank amongst the arts, and its possession of some of the most ingenious machinery recently invented.

The total annual number of letters passing through the Post-office in the United Kingdom before the change in the postage was about 78,000,000. The fourpenny-rate, and the alteration in the system of charge by number of enclosures to that by weight, was introduced on the 5th of December, 1838, and on the 10th of January, 1840, the rate was reduced to one penny: during that year the number of letters increased to 169,000,000, about half of which were enclosed in envelopes. The number of letters has been steadily increasing since that period, and during the year 1850, it reached the astonishing number of 347,000,000, or 1,000,000 per day; the proportion of letters enclosed in envelopes has likewise increased from one-half to five-sixths of the total quantity, so that in round numbers 300,000,000 of envelopes pass annually through the Post-office; besides which there is nearly an equal number used in private conveyance. What does this million of envelopes contain! Their expo-

sition would furnish an instructive and entertaining study.

In illustration of the articles sometimes sent by post, it may be cited, that some years back Professor Henslow was in the habit of receiving, from members of an agricultural society which he had established, specimens of living slugs of various kinds, sent for examination, with a view to his advice for their extermination. Were it not for the cheap postage many of the publishing societies now in existence would not have been established, on account of the expense of collecting manuscripts, transmitting proofs, and circulating books. But it is not only in this way that the postal reform has extended its benefits, for with the reduction of rates a liberal policy has increased the facilities of delivery by the establishment since 1839 of 4,600 new post-offices, which are estimated as serving about 14,000 villages.

Returning to the manufacture of envelopes, we find but little progress until March 1845, when Mr. Edwin Hill and Mr. Warren De la Rue took out a patent for cutting and folding machinery. Until this period, envelopes had been folded by hand, by means of a bone "folding-stick," an experienced workwoman folding about 3,000 per day.]

Papers ornamented in the water-mark.

Articles of Stationery.

Plain envelopes, folded by machinery.

Envelopes, with seal flaps, embossed, plain, and in cameo.

Envelopes, goffered, lace-perforated, and embossed.

Embossed and lace letter papers.

Specimens of writing papers, highly glazed, and in fancy packets.

Specimens of writing papers, highly glazed, goffered, and in fancy packets.

Packets of envelopes, in boxes.

Note and letter paper, in boxes.

Papeteries—envelopes and note papers, in fancy wrappers.

Newspaper envelopes. Paper-cloth envelopes.

Document bands, made of paper, lined with caoutchouc.

Cards for weddings, envelopes and "At home" notes, wafers and ties, silver-edged, printed in silver, plain embossed, and embossed in silver.

Cards, envelopes, and letter and note papers, plain and embossed, for mourning.

Surface-coloured and enamelled papers, coloured by hand and by machinery, patented by Warren De la Rue.

Gelatine papers. Embossed papers.

Papers printed in colours, gold and silver, and metal colours.

Iridescent papers, the changing colours of which are produced by a thin film of colourless varnish, patented by Thomas De la Rue.

Nethographic papers, or papers printed from wire-cloth. Patented by Thomas De la Rue.

Plain gold and silver papers.

Embossed gold and silver papers.

Gold borders, for box makers.

Pasteboards, Cards, &c.

Playing cards, with plain and ornamental backs, comprising a variety of floral and fruit designs, some printed in eight colours, patented by Thomas De la Rue.

Message-cards, plain, white, tinted, goffered, enamelled, and iridescent.

Drawing-boards, plain and embossed.

Mounting-boards, tinted and plain.

Printing.

T. De la Rue and Co.'s catalogue, as a specimen of type printing.

Ornamental tickets and labels, in plain printing, printed in gold and colours, and embossed.

Box-tops, printed in gold and colours, and embossed.
Bands for piece goods, printed in gold and colours, and embossed. Book-covers.
Ball-tickets, admission tickets, and programmes.
Printing inks.

Bookbinding.

All the designs are produced by the combination of four hundred new tools, cut from designs by Mr. Owen Jones.

Albums, bound in wood, leather, and velvet.
Scrap-books. Portfolios. Music books. Manuscript books.

Memorandum books. Indelible diaries.
Pocket ledgers, and account books.
Solid sketch-books and drawing-blocks. Drawing books.
Writing-desks, cabinets, and envelope-cases, in wood, leather, and velvet.

Pocket-books, wallets, and card-cases, in leather and velvet. Sermon, tourist, and note-cases.

Despatch-boxes. Playing-card boxes. Pocket chess-boards.

Blotting-cases, in wood, leather, and velvet.
"MacCubes," or pamphlet, letter, or music-holders.

77 ARMSTRONG, JOHN, 11 Great College Street North, Camden Town.—Sculptor.

An illustrated music sheet, containing two sets of quadrilles. No. 1. "Quadrilles Antique." No. 2. "Quadrilles of All Nations." Arranged by Philip Klitz, engraved by the exhibitor. Published by John Klitz, No. 198 Tottenham Court Road.

78 CASLON & Co., Chiswell Street—Producers.

Specimens of caligraphic type, engraved and produced under the superintendence of Mr. E. Boileau. Printed specimen. The caligraphic types in chase.

Specimens of improved coloured printing inks, manufactured so as to be readily mixed with the varnish when wanted. By an improved process these colours, after having been deprived of all extraneous substances, are reduced to the finest powder, requiring only the use of a palette knife to mix them to the consistency of ordinary printing ink, thus effecting a great saving, and facilitating the labour of the ornamental printer.

79 DOBBS, KIDD, & Co., 134 Fleet Street—Designers and Manufacturers.

Embossed drawing-boards, cards, and paper; enchaused or lac-bordered cards and paper; also, embossed tableaux, exhibiting the application of embossing to the fine arts.

80 STOKES, ROBERT, Ivy Cottage, Kinsland—Inventor.

Three bottles of chemical ink. This ink may be employed on writing paper or parchment besmeared with grease. It is intended to be serviceable to butchers, bakers, oilmen, conveyancers, and solicitors.

81 HEYWOOD, JOHN, 170 Deansgate, Manchester—Manufacturer.

Foolscap quarto copy-books, with printed headings.
Fest quarto copy-books, in two qualities of paper.

84 HAMEL, ALFRED, Horsforth, near Leeds—Manufacturer.

Both papers for pressing and finishing woollen cloths. Press papers for stuff goods, both rolled and glazed. Glazed papers used for cotton goods. Gun wadding of a new description.

85 HASTINGS & MELLORE, Leeds—Manufacturers.

Press papers, for pressing woollen cloths. Brown papers, glazed and unglazed, for wrapping up woollen and other manufactured articles.

86 KNIGHT, J. Y., 39 Briggate, Leeds—Manufacturer.

Leathers, royal folio paper, ten quires, white vellum, morocco bands; smaller account-books, in common binding. These books, when open, present a perfectly flat surface.

87 BAGSTER, SAMUEL, & Sons, 15 Paternoster Row—Producers.

Polyglot bible, printed in separate pocket volumes, which correspond, page for page, with each other; so that a convenient polyglot Bible of two, three, four, or more languages may, at pleasure, be formed by placing the required number of volumes before the reader.

Other specimens of typography and binding.

88 CROSS, GEORGE, 2 New Coventry Street—Inventor and Manufacturer.

Print collector's improved scrap-book, without guards, by which prints, drawings, &c., may be put close up to the back, and withdrawn without injuring their edges.

89 RIVIERE, ROBERT, 28 Great Queen Street, Lincoln's Inn Fields—Designer.

Specimens of bookbinding, viz. :—

Spenser's works, folio, morocco, tooled with a double interlaced monogram (R. Riviere); the inside covers tooled with cipher E. S.

Virgili Opera, royal 8vo, inlaid with variegated leather on white morocco; inside covers tooled in foliated curves. Common Prayer, folio, in antique morocco.

Chronicles of England, 4to, tree-marbled calf.

[Inlaid or mosaic binding is produced by sticking various coloured leathers, silk, velvet, or paper on the cover, and finishing the joints by gilding.

Tree-marbling is the mottling or marbling caused by pouring a solution of green copperas (protosulphate of iron), on the cover, and causing it to flow somewhat in the form of a tree.—W. D. L. R.]

90 FERGOUSON BROTHERS, Edinburgh—Manufacturers.

Specimens of printing type—nonpareil, minion, brevier, bourgeois, long primer, and small pica.

91 NEIL, ROBERT, 13 North Bank Street, Edinburgh—Designer and Manufacturer.

Specimens of bookbinding, viz. :—

An imperial quarto Bible, morocco super extra, morocco insides, with satin fly-leaves. The outside of the boards and back is a specimen of hand-tooling, illuminated; and the inside of the boards the same, not illuminated; in the interior of the oval on each side of the shield, on white morocco, is a family register; and on the satin fly-leaves, is another specimen of blocking; or the edges, are the etchings of three churches—top, St. John's, Edinburgh; bottom, St. Giles', Edinburgh; front, St. Mungo's, Glasgow.

A morocco case for the Bible, so designed that the Bible may be fully seen, without handling or removing it from the cushion at the bottom of the case.

92 SINCLAIR, DUNCAN, & Son, Whiteford House, Edinburgh—Designers and Manufacturers.

Small founts of music type of different size and body. Cases containing the numerous characters—about 300 in each fount—with a plan showing the position and number of each separate character, for the setting up of any piece of music, however difficult.

Specimen-pages of each of the above music founts, printed from type and stereotype plates. Books containing specimens of all the book and newspaper letter founts. Specimen-sheets of uniform founts of book and newspaper letter.

93 WATERSTON, GEORGE, Edinburgh—Manufacturer.

Specimens of sealing wax and wafers of various colours and qualities.

94 MACKENZIE, W., London Street, Glasgow—Inventor.

A volume printed in church text, illuminated with red capitals; the types of each sheet were composed only once, and both colours were printed from the same form without lifting, a method which secures perfect register,

without incurring the expense of composing, as in the usual way, separate forms for each colour. Several specimen pages of this mode of printing, showing its general applicability.

96 **BANCES BROTHERS, Weirhouse Mill, Chesham—Manufacturers.**

Patent writing-papers, embellished with ornamental designs, and authenticated by autograph signatures in the water-mark.

[The water-mark on paper was, until within a very short period, confined to the ribbing of laid-papers, or the distinctive mark of the paper-maker. Recently, ornamental designs have been produced, by means of wires sewn on the hand-mould or the dandy-roller of the paper machine, of which specimens are exhibited. This improvement was introduced by the Messrs. Busbridge. The process consists in forming the required design in brass plates, which are sewn on the mould or dandy-roller.]

97 **BUDDEN, EBENEZER, Cambridge—Designer and Manufacturer.**

Specimens of bookbinding:—Album, inlaid in colours, with interlacing band pattern, edged with body colours, inside joints and vellums inlaid, gilt, and painted; the leaves gilt, silvered, and painted with brilliant colours. Bible in purple morocco, with gilt cover and joints.

98 **WHITELEY & SONS, Stainland—Producers.**
Specimens of press boards.

100 **SMITH, EDWARD, Felling Shore, Gateshead—Producer.**

Glazed brown paper, manufactured by Messrs. Thomas Gallon & Co., paper brokers, Felling Shore. Glazed by an improved process.

101 **COWAN, ALEXANDER, & SONS, Valley-field Mills, near Edinburgh, and 45 Upper Thames Street—Manufacturers.**

Specimens of paper. Large cream laid, large blue laid, thick cream laid, and thick blue laid, post folio, note and letter papers. Blue wove and laid bank post for foreign correspondence, &c. Blue laid medium and demy for account books. Bank note paper. Envelopes in packets. Pictorial note papers, with views in oil colours. Fine printing demy. Account books, various.

102 **WILDES, WILLIAM, Snodland, Rochester—Designer and Manufacturer.**

Specimens of writing paper ornamented by wreaths of flowers in the water-mark.—Registered design.

103 **WISEMAN, HENRY RICHARD, 9 Trinity St., Cambridge—Manufacturer.**

The King's Bible, in two volumes, printed at the Pitt Press, Cambridge, bound in royal scarlet morocco, tooled, with illuminated vellum fly-leaves, tooled edges, &c.

106 **CUNDALL & ADDEY, 21 Old Bond Street—Publishers.**
Specimens of bookbinding:—

In gold paper, the ornamental design being printed on it in colours, by means of wooden blocks.

In morocco, covered with an elaborate design in pierced metal, enamelled, gilt, and chased. The metal-work by Thomas Burt and Sons.

In ornamental cloth; in morocco, inlaid with a pierced ivory tablet.

In morocco, in a style suitable for ecclesiastical books; executed by James Hayday.

In morocco, using a decorated china tablet for the side of the book, with gilt bosses for its protection. The tablet manufactured by W. T. Copeland, at Stoke-upon-Trent.

107 **KNIGHT & HAWKES, Stanhope Foundry, 13 Clerkenwell Close—Manufacturers.**

Stereotype casts from printing type, of the various sizes and characters; in English, German, Irish, Syrian, Hindostanee, Chaldee, Persian, &c., together with the type and the moulds.

Stereotype casts from engravings in wood, steel, &c.

Specimens of stereotype plates for surface printing in colours.

Stereotype plates for embossing.

108 **ROCK BROTHERS & PAYNE, 11 Wallbrook—Manufacturers.**

Account books with metallic bands; fancy note and other papers; blotting pads; sketch books; publication folios; and memorandum books with new elastic bands for clasps.

Albums and scrap-books, three of the latter containing nearly 2,000 views in England: produced by the exhibitors.

109 **ORR, W. S. & Co., Amen Corner—Producers.**

Various works in plain and ornamental binding, including russias, morocco, calf, antique calf, and cloth.

Series of maps, illustrating the physical features and phenomena of the globe.

110 **PECKERD, JOHN PARSONS—Designer.**

Original design in penmanship, showing the effect produced by Tate's exchequer ink.

111 **WESTLEYS & Co., Friar Street, Doctors' Commons—Manufacturers.**

Various specimens of bookbinding, in plain and ornamental styles; several gilt, with appropriate and emblematical tooling; including the Holy Bible, royal folio, Oxford, bound in purple morocco, with encaused clasps, corners, and centres; and painted edges, in gold and colours, with appropriate Scripture texts from the Old and New Testament.

112 **FOLKARD, W. J.**

Specimens of printing from wood blocks.

113 **EVANS, EDWIN, Yorkshire Street, Oldham—Designer.**

Specimen of typography.

117 **MACNAIR, WILLIAM, Glasgow—Producer.**

Specimens of bookbinding: Imperial quarto volume, bound in morocco, super-extra, modern style; Encyclopædia of the Fine Arts, demy quarto, bound in calf, super-extra, antique style; Milton's Paradise Lost, imperial octavo, morocco, super-extra, antique style; Gallery of Nature and Art, royal octavo, calf, super-extra, modern style.

118 **STIRLING, W., Kenmure House, Glasgow—Proprietor.**

A copy of the Bible printed by Her Majesty's printer in Scotland in 1811: only 100 copies of this edition were printed on large paper; it is bound in white morocco, and gilt, as a specimen of bookbinding in Glasgow.

119 **TODD, JOHN, Perth—Manufacturer.**

Writing inks and ink powders, known as the "Perth writing inks," made up in different sizes of bottles or packages. One is a carbonaceous ink, said to be indestructible by the action of air or light, or any known chemical agent.

120 **PARKER, J. H., Oxford—Proprietor.**

Illustrated books.

121 **FLOWMAN, J., St. Aldate's Street, Oxford—Inventor and Manufacturer.**

Portable copying letter-case, for taking copies of letters, documents, &c., written in ink, by the mere pressure of the hand. The process is simple and expeditious.

CKS, ROBERT, & Co., *New Burlington Street—*
Part Manufacturers.

yce's collection of Cathedral Music, edited by arren, in 3 vols., large folio; containing the and anthems of the great English Church com- um the period of the Reformation, viz., Thomas chard Farrant Byrd, Bevan, John Bull, Morley, stopher Tye, Mirchild, Henry Aldrich, Robert a, and Benjamin Rogers; also by Orlando Gib- mas Tomkins, John Parsons, William Munday, Lawes, Henry Purcell, Pelham Humphrey, Jer- rk. Dr. John Blow, Matthew Locke, Goldwin, Michael Wise, Dr. Turner, and Dr. William h memoirs of the composers, and a portrait of s. Exhibited as a specimen of the art of en- and stamping musical notes on plates of pewter— usic, printing, and bookbinding. This work is om more than 1,200 plates.

m Boyce, Mus. Doc., was born in 1710. He was o several churches successively; and finally, on 1 of Dr. Greene, 1775, of the Chapel Royal. t work was the projection and partly the execu- is predecessor (Dr. G.) Boyce died in 1779, and d in St. Paul's Cathedral.—H. E. D.]

INE, VINCENT & JAMES, 17 & 18 *West Street, mithfield*—Designers and Manufacturers.
ens of type—some of the ornamental letters French and German design.
aterials of type metal—lead, tin, and antimony. al of different qualities.

ould and matrix. Type mould taken to pieces. l-cuts; metal matrices made from them; casts matrices.

type copper matrices from casts, illustrative of as of polytyping wood-cuts.

super royal, containing upwards of 220,000 pearl type, weighing 10 stone, held in suspension pressure, technically called "locking up."

ELLO, J. ALFRED, 69 *Dean St., Soho, & 24 Poultry*—Producer.

ens of music type, and a sketch of the method g music from moveable types, showing all the eces, their shapes, and the cases in which they ged before the compositor.

CHIN & MOREL, 8 *Wilson Street, Gray's Inn Road*—Manufacturers.

cut, stereotype plates, and engravings.

tuminous stereotype plates are for printing pur- d though new in this country, have been exten- d in France for the last two or three years; their over the metal plates consists in their hardness, ders them more lasting, and in the fineness of ressions, which is stated to be equal to those of cut.]

ARK, W., *Dunfermline, Scotland*—Designer.

ens of bookbinding, viz:—

vo, full-bound in maroon Turkey morocco, gilt ad-tooled in gold on back and sides, with satin

ooled designs are usually employed in the as of bindings, and are formed by the com- f a number of separate tools arranged according te of the workman.—W. D. L. R.]

rs' History of Dunfermline, 8vo, full-bound in ey morocco, hand-tooled in gold and silver on sides, and with silver and satin linings.

Scenes from the Bible, 8vo, full-bound in f, fancy bronzed paper linings, gilt edges, hand- k and sides, with gold and silver.

Cheever's Winding of the Water of Life, 8vo, full-bound in green calf, fancy bronzed paper linings, gilt edges, hand-tooled back and sides, with gold and silver.

[Bookbinders, previous to gilding, prepare the leather with white of egg, or glair, as it is technically called, and, after it has dried, apply the gold or silver leaf with heated tools of the required design. The glair softens and attaches itself to the gold, which is readily removed from those parts not so impressed.—W. D. L. R.]

The Great Teacher, by Dr. Harris, post 8vo, half-bound in green morocco, scarlet cloth sides, fancy bronzed paper linings, gilt edge, hand-tooled, gilt on back, the sides wrought with gold and silver.

135 CLARK & DAVIDSON, *Mauchline, Scotland*—Manufacturers.

Specimens of bookbinding in wood, &c., viz:—

Pictorial Bible, bound in wood boards, ornamented with arabesques.

Songs of Scotland, bound in wood boards, in imitation of tartan, with view of Banks of Doon, in ornamental shield.

Portfolios, with wood boards, in imitation of tartan, and views; Balmoral Castle, in ornamental shields; Holyrood Palace, in ornamental shield; Andernach on the Rhine, &c.

Scotch snuff-box, and Scotch fancy wood-work.

Note-books. Metallic books, with arabesques. Ornamented wood flower-vases. Enamelled wood egg-cup stand. Portable work-box. Thread-reel boxes. Crochet-boxes and cases. Needle-books, boxes, and cases. Snuff-boxes of fancy wood. Match-boxes. Toilette-bottle cases. Razor-cases and strops. Spectacle-cases and slips. Paper-folders and book-marks. Pomatum and scent boxes; and scissor-cases. All with imitation of tartan.

136 BRADBURY & EVANS, *Whitefriars*—Producers.

Specimen of letter-press and wood-cut printing.

137 DUDMAN, JAMES, *Camberwell Place, New Road*—Inventor.

Specimens of three sorts of self-sealing envelopes:—First—A metallic capsule attached to the envelope, containing cement, which, by the pressure of the thumb, spreads and seals. Second—Adhesive cement attached to the envelopes, in the sealing position, with a piece of metallic foil between the cemented surfaces, on removing which, by pressure, the envelope is sealed. Third—The same in principle as the last, without the interposing foil, a portion of the envelope being turned between the cemented surfaces: this requires warmth, as the cement is harder than in the preceding.

139 WRIGHT, J., 14 & 15 *Noel Street, Soho*—Producers.

Various specimens of bookbinding, including the illuminated books of the middle ages, by H. Noel Humphrey and Owen Jones. Imperial folio, bound in brown morocco; the boards cut and blued; tooled in the antique style, the edges gilt and tooled, and many other choice works, in varied and appropriate ornamental styles.

140 PICKERING, WILLIAM, 177 *Piccadilly*—Producer.

Specimens of printing, viz:—

1. The Victoria Book of Common Prayer, carefully collated, and adapted to the present reign; printed in large old English type, by Mr. Whittingham, with floriated initial letters, and the rubrics in red.

2. King Edward VIth's Book of Common Prayer, with musical notes by John Merbecke, 1550.

3. Euclid, the first six books, with coloured diagrams and symbols, used instead of letters, for facilitating a knowledge of Euclid. This work is a specimen of letter-press printing in colours, not hitherto used.

4. The Princess Elizabeth, Francis I., and an enamel, being specimens of the dresses, decorations, missal ornament, and decorative art of the middle ages, by Henry Shaw, F.S.A.

- 141 ELLIS, HERCULES, *Hardwick Street, Dublin*—
Producer.

Specimens of poetry published by J. Smith, 49 Long Acre.

- 142 RALPH, FREDERICK W., *36 Throgmorton Street*—
Manufacturer.

Registered polychrest envelopes, made in three sizes, and self-sealing; invented to combine in one the note and envelope, so that the contents are always identified with the address and postmark; important in evidence; and for correspondence and business purposes, economical in regard to expense and time. When used as envelopes only, they are more secure for patterns and enclosures than those in common use.

- 143 DEWDNEY, JOHN, *Cullompton*—Manufacturer.
Specimens of paper.

- 144 BYAM, ELIZA, *Bazaar, Soho Square*—Producer.

Compound stationery case; travelling, writing, working, dressing, and refreshment case; lady's carriage companion, &c.

- 147 LAMB, JOHN, *Newcastle-under-Lyme*—Manufacturer.

Reel of pottery tissue-paper, used for printing earthenware from copper rollers by machinery.

Ream of pottery tissue for printing china and earthenware from flat copper plates.

Capstan, or piece of old round rope, and piece or length of old flat coal-pit rope, the material from which the paper is manufactured.

[The paper manufactured for the purpose of the potter was made of linen rags, but it is now almost always made from cordage, and is unsized. The reason of this is, that being printed on with ink, of the colour required on the ware, and of such a nature as to fix firmly, it is rubbed upon the "biscuit" with a roll of flannel, and being placed aside for a short period, it is plunged into water, and the bibulous paper removed with a sponge, leaving the impression on the piece of pottery.—R. H.]

- 148 NEWBURY, J. & R., *2 and 3 Hemlock Street, Carey Street*—Manufacturers.

Gold and coloured papers for bookbinding, &c.

- 149 VENABLES, WILSON, & TYLER, *17 Queenhithe*—
Manufacturers and Wholesale Stationers.

Specimens of the present state of the paper manufacture in Great Britain, classified and arranged in portfolios and reams.

Specimens of the material used in its various stages of preparation for the manufacture of paper.

[Among the specimens, which are very numerous, and contain patterns of all the papers in ordinary use, are several descriptions manufactured for the occasion, of a very superior character, and possessing improved qualities.]

- 150 MILLER & RICHARD, *Edinburgh*—Founders.

A specimen of the smallest types ever manufactured in this country, cut and cast expressly for the Great Exhibition. The whole of Gray's "Elegy," consisting of thirty-two verses, is contained in two columns, $3\frac{1}{4}$ inches deep.

- 151 AUSTIN, WILLIAM, *5 Furnival's Inn Place*—
Manufacturer.

Fancy boxes, &c.

- 152 BURKE, THOMAS H., *Bull Head Court, Newgate Street*—Producer.

Fancy stationery.

- 153 HAMPSON, B., *14 Fountain Street, Manchester*—
Manufacturer.

Labels, tickets, &c., used to ornament manufactured goods.

- 154 SPECIMENS OF BOOKS AND TRACTS OF THE RELIGIOUS TRACT SOCIETY, instituted 1799. Depositories, 56 Paternoster Row, 65 St. Paul's Churchyard, and 164 Piccadilly. Treasurer, John Gurney Hoare, Esq.; Honorary Secretaries, Rev. W. W. Champneys, M.A., and Rev. Ebenezer Henderson, D.D. Corresponding Secretary, Mr. Jones.

The Society was formed to promote the circulation of religious books and treatises in foreign countries, as well as throughout the British dominions. It constitutes a Christian union of members of the Established Church and of Protestant dissenters. It has printed important tracts and books in about 110 languages; its annual circulation from the Depository in London, and from various foreign auxiliaries, amounts to about 24,000,000; its receipts, for sales and benevolent objects, to more than 62,000*l.*; and its total distribution to March, 1851, including the issues of its affiliated societies, to about 549,000,000 copies of its publications. There are now about 4,743 English publications, besides several hundred in foreign languages, on its catalogue. These works are varied in size and contents, and suited to different classes of the community. Several books and tracts specially designed to improve and commemorate the Great Exhibition have been issued in English, French, German, and Italian. By a carefully arranged system in the concerns of the Depository, the sale of the publications is made to cover all the expenses of producing them, and of the necessary establishment of the Society. Thus the whole of the subscriptions, donations, and contributions is applied to the gratuitous circulation of its publications, without any deduction or charge whatever. In aid of home and foreign benevolent objects, the Society receives about 6,560*l.* per annum, while its grants during the past year were 8,560*l.*, being 2,000*l.* beyond the receipts. The Committee have supplied 3,028 libraries, at half-price, to National, British, Parochial, Day, and Sunday Schools, which were unable to pay the full amount. The total grants of libraries, for various interesting objects, amount to 6,055*l.*

The Society has translated, printed, and circulated works in the following languages:—

Western Europe.—English, Welsh, Gaelic, Irish in native characters, Irish in Roman characters, Manks, French, Breton, Spanish, Portuguese.

Northern Europe.—Icelandic, Swedish, Lapponeese, Finnish, Danish, Norwegian.

Russian Empire.—Russ, Revel Esthonian, Dorpat Esthonian, Lettish, Tartar-Turkish, Buriat, Calmuc.

Central Europe.—Dutch, Flemish, German, German vulgar, Lithuanian, Polish, Wendish, Bohemian, Sclavonic, Magyar.

Southern Europe.—French, German, Latin, Romanese, Enghadin, Italian, Maltese, Modern Greek, Albanian, Turkish, Turkish in Greek character, Turkish in Armenian characters, Moldavian, Bulgarian, Syriac.

Caucasian and Border Countries.—Georgian, Georgian vulgar, ancient and modern Armenian.

Semitic Languages, &c.—Hebrew, Arabic, Syriac, Persian.

India.—Sanskrit, Hindustani, Urdu in Roman characters, Bengali, Bengali-Anglo, Oriya, Hindui, Nagree, Telooou, Canarese, Tamil, Malayalim, Tulu, Mahrattee, Gujaratti, Cingalese, Indo-Portuguese.

China and Indo-Chinese Countries.—Chinese, Assamese, Shyam Nagas, Burmese, Peguan, Taleing, Karen, Siamese, Laos, Cambodian, Cochinchinese, Loo-Chooan, Japanese, Korean.

Hitther Polynesia.—Malay in Roman characters, Malay in Arabic, Malay Low, Buggis, Dajak, Javanese, Madurese.

Further Polynesia.—Hawaian, Tahitian, Rarotongan, Tonga, Samoan, New Zealand.

For Africa.—Malagasy, Sechuana, Kaffir, Isubu, Amharic, Spanish Hebrew.

erica.—Karif, Mosquito, Greenlandish Esquimaux, &c., Ojibbewa.

rough the disinterested agency of devoted friends missionaries, of different denominations, several languages have, for the first time, been brought into a uniform form, and a sacred character has been given by the Christian press to the earliest literature of a people just rising from a state of barbarism. As an illustration of the extent of the Society's operations, it may be stated that Bunyan's celebrated work, "The Pilgrim's Progress," has been issued in 28 of the principal languages of the world, spoken probably by more than one-half of the human race. In some instances the work has been printed in different characters, as in the following examples:—

Malagasy, for the use of the persecuted Christians of the island of Madagascar, thus:—

na nianina tety ambony tany aho, dia nijanona tamy oerana iray nisy lavabato, ary maudry tao aho, ka r; ary raha natory aho, dia nanonofy.

Tahitian, for the inhabitants of various islands in the Pacific Ocean, thus:—

o'u hahaeo ras na roto i medebara o teie nei ao, atura van i te hoe vahi, e ana tei taua vahi ra, atura vau i reira e roohia ihora i te taoto i roto i ana ra.

The original of these translations is the following:—As I wandered through the wilderness of this world, I lighted on a certain place where was a den, and laid me down in that place to sleep, and as I slept I dreamed a dream.

Specimen of Chinese tract, entitled "The Summary of the Gospel:—

罪若	罪罪
紅不	大紅
惡來	似似
多到	山血
亦不	必必
宜要	變洗
哀求	平似
求救	地雪

SWANN, THOMAS FRANCIS, 43 Southampton Buildings—Inventor and Manufacturer.
Specimen of red marking-ink for linen, silk, &c.

WEBB, WILLIAM, 34 Southampton Buildings, Chancery Lane—Producer.
Improved instrument for writing with pens and ink on all copies simultaneously.

HOOD, J. H., 25 Red Lion Square—Producer.
Improved portfolios, illuminated vellum binding, &c.

LEIGHTON, JANE & ROBERT, Harp Alley, Shoe Lane.
Specimens of bookbinding, exhibited for novelty, cheapness, and design. The process of binding is conducted, as far as possible, by machinery, each book being ornamented at a blow by an engraved die. Designs by Luke Leighton. The covers, in imitation of carved ebony, are manufactured of papier maché, by Messrs. Jackson and Co. of Rathbone Place. Each cover bears the designer's

name. The book cloths are rendered waterproof by Leighton and Son's new process, and manufactured by Mr. James Wilson, of 128 St. John's Street, Clerkenwell. The silver leaf used to decorate certain of these books, is prevented from tarnishing by a new process, invented by Leighton and Son. The clasps, and other metal work, are manufactured by T. J. Guy, of Harp Alley, Shoe Lane.

159 WODDERSPOON, JAMES, 16 and 17 Portugal Street, Lincoln's Inn Fields—Designer and Manufacturer.

Specimen of an account book, in which the usual defect of breaking between the sections is prevented by the introduction of patent vellum cloth bands, which strengthen the book, without adding to its thickness at the back. The advantage of this new material is, that it will carry ink as well as paper; and it is stronger and thinner than any substance hitherto used for the same purpose.

160 GILL, H., Dublin.

Various quarto and octavo volumes containing specimens of illustrated printing.

162 RAINES, T., 24 Great Ormond Street, Queen Square—Designer and Manufacturer.

Specimens of bookbinding.

163 LEWIS, Mrs. C., Duke Street, St. James's—Producer.
Specimens of bookbinding.

164 WATTS, W. M., 12 Crown Court, Temple Bar—Producer.

Specimens of Oriental and other types, in sixty-seven languages.

The Lord's Prayer in Chinese characters, with the pronunciation of each letter; and a portion of the Liturgy, also in Chinese moveable metallic types.

The Lord's Prayer in embossed characters, for the use of the blind, in two systems.

165 ISAAC, JOHN RAPHAEL, 62 Castle Street, Liverpool—Inventor and Proprietor.

Registered cabinet in oak, for containing maps, diagrams, &c., intended for use in general offices, and at public lectures. The handle, acting right and left, brings to view any particular map required.

Registered manifold stand in mahogany, for holding a portfolio, and suitable for an easel, music, and reading-desk.

165A BLACKWOOD & Co., 26 Long Acre—Manufacturers.

Bottles in earthenware and glass, having a lip or spout, for holding ink; the cork is drawn by means of a ring attached to it.

166 HODSON, J. S., 22 Portugal Street, Lincoln's Inn Fields—Producer.

Specimens of letter-press printing, in various colours.

167 CAFFRY, JAMES, 18 Palace Row, Armagh, Ireland—Producer.

A copy of a one-pound Ulster bank-note, executed on Bristol board, with a common pen; exhibiting pictorial designs of shipping, ploughing, &c., as a specimen of the calligraphic art.

168 LINES, EDWARD D., & Co., Plummers Row, Fieldgate Street, Whitechapel—Manufacturers.

Blue writing fluid.

169 BRETTELL, T., Rupert Street, Haymarket—Producer.

A hymn for all nations, by M. F. Tupper, D.C.L., F.R.S.; translated into thirty languages. The music composed by S. Sebastian Wesley, Mus. Doc.

170 EDINBURGH SCHOOL FOR THE BLIND, *Abbey Hill, Edinburgh*—Producer.

Dr. Foulis's tangible ink for the blind. This ink, although perfectly fluid, contains a large quantity of solid matter which is deposited on the paper so as to present a highly raised surface to the finger. Dr. Foulis's manuscript music notation for the blind. By means of this invention the whole of the characters in music can be represented by common pins stuck into a pincushion, with chords run through to represent the staves. Dr. Foulis's simple method of producing a raised surface on paper for the blind.

Mr. Gall's typhograph for the blind. A simple apparatus to teach the blind to write. The invention is simple of application, and the writing is precise and occasionally elegant. Mr. Gall's system of arithmetic for the blind, accomplished by common pins stuck into a pincushion. Its simplicity is such that a blind person can make his calculations with a few pins on a pillow, or seat of a chair, &c. Mr. Gall's types for correspondence, by which blind persons can correspond with one another, or jot down memoranda for private use.

171 GALL, JAMES, *Myrtle Bank, Edinburgh*—Inventor.

Gall's triangular alphabet for the blind, which, by its similarity to the common Roman alphabet, is easily read by the eye, and may be taught without previous instruction. This alphabet is considered as an improvement on circular alphabets, by its angular form; the letters are rendered more distinct to the touch; and by the exclusion of the capitals, the attention of the blind is concentrated upon 26, instead of 52 letters, and the size of the printing may be reduced. Volume, containing the Epistle to the Ephesians, printed for the blind in Gall's triangular alphabet, with the letters serrated.

Gall's apparatus for writing by and to the blind. The blind can, by this invention, readily correspond by post, and can keep books and other memoranda. The apparatus consists of a stuffed frame on which the paper is placed; of a cover with bars to guide the lines, which are written from the bottom upwards; and of small stamps, with the letters formed of common pins, which are pricked through the paper, and read on the opposite side. By means of the two register points on each side of the frame, and by shifting the cover one half line up, the paper is written on both sides, each perfectly legible either by the fingers or the eye.

172 BAXTER, —, *Fromersfield School, Frome, Somerset*—Producer.

The National Anthem with music, on a large scale, for the use of schools.

172A WEBB, ELIZ., *Kirby Hall, Horton*.
Church services ornamented with needlework.174 MUIR, ROBERT, 4 *Dunlop Street, Glasgow*—Inventor.

Electro-stereotype plate for letter-press printing. This specimen is from a mould of gutta percha, taken from a page of diamond types in a screw press. The gutta percha was laid on warm, the pressure applied immediately, and left on for fifteen minutes. When the mould was taken off it was brushed over with plumbago, and copper deposited upon it by the known process. When the copper deposit is backed up with gutta percha, it is ready for press.

The advantage of electro-stereotype over stereotype is, that it will last much longer, and work much cleaner. The exhibitor has worked one of each together, and when the stereotype was completely worn, the electro-stereotype was as good as at first.

Gutta percha plate to be used in letter-press printing. Plates made of gutta percha from wood-cuts, will work a large impression with letter-press; advantageous when wood-cuts are expensive, as the originals might be saved.

Gutta percha plates can be made in a short time at a trifling cost; and when 2, 4, or 6 are worked together, it will greatly facilitate the work, and lessen expenses.

Make a mould from a wood-cut by the method above described; brush it over with plumbago; lay it on the press, face up, and put warm gutta percha into it; apply the pressure as before. Several plates may be got from the same mould.

[This process appears to offer many advantages, if the practical difficulties of completely covering the impressions of the type letters, or the lines of an engraving, with plumbago, are not too great. The gutta percha plate, being properly prepared, is connected with the voltaic battery, and placed in a solution of the sulphate of copper, which, then undergoing electro-chemical decomposition, deposits pure copper in all the lines and over the entire surface. It would appear, if lead was used instead of gutta percha for backing the plate, that it would be better fitted for printing than when gutta percha is employed.—R. H.]

175 WILD, JAMES, *Charing Cross East, 454 West Strand, 2 Royal Exchange, and the Great Globe, Leicester Square*—Producer.

A General Atlas, containing 67 maps, of the various parts of the world, showing their respective physical and political features, including the recent discoveries. Columbian folio, full-coloured, and half-bound in Russia.

A General Atlas, being a useful selection from the preceding. Full-coloured; 41 maps.

An Atlas of the World, comprehending 52 separate maps of its various countries, constructed and drawn from the latest astronomical and geographical observations. Imperial quarto, coloured, and handsomely half-bound.

School Atlas, with a copious index, containing upwards of 8,000 names of places.

Popular Atlas, containing 48 maps of the various parts of the globe, with letter-press description to accompany each map. The World, on Mercator's projection. A new map, containing the most recent geographical information, and constructed upon a new principle; 4 large sheets. The World, on Mercator's projection; coloured, one large sheet.

General Map of Europe, drawn from the latest documents; divided into its empires, kingdoms, and states, showing the great roads, railroads, physical features, &c. Six sheets.

Post Roads of Germany, and the adjacent States, with the posts marked, the railroads, the sea-packet routes, and the internal steam navigation. Two sheets, in cases.

The British Isles, with the topographical and physical features; the lines of railway, their primary and intermediate stations; the land and water communications of the countries; and the steam-packet routes, with the distance from port to port. Compiled from the Ordnance Survey. Two sheets.

England, Wales, and the greater part of Scotland, a Railway and Topographical Map, drawn from the triangulation of the Ordnance Survey, and the surveys of the Railway Companies, and other sources of information, showing the lines of railways, the inland navigation, the great and cross roads, cities, market towns, and villages, with the physical features. Four sheets.

Plan of London and Westminster, with the Borough of Southwark, including the adjacent suburbs, with all the additions and improvements to the present time, reduced from the large survey, with an alphabetical list of the principal streets, squares, public buildings, &c., and reference to their situation on the plan; also a statistical table of the population, &c. Two sheets.

New Map of London, extending from Holloway to Camberwell, and from Kensington to the River Lea. One sheet.

Map of the country 25 miles round London, upon a scale of 1 inch to the mile, showing the turnpike and cross-roads, railroads and stations, rivers, woods, com-

man, seats of the nobility and gentry, as well as the market towns, villages, &c. Four sheets.

Scotland, drawn from the topographical surveys of John Ainslie, General Roy, and others, with the post towns and offices, the turnpike-roads (both direct and cross), railways, and the distances between each town, and from Edinburgh. Two sheets.

Ireland, reduced from the Ordnance Surveys. Four sheets.

Assa, compiled from the most recent documents, in four large sheets.

India, from the latest authorities, showing the civil and military stations, with polemetrical table of reciprocal distances. One large sheet.

Islands of New Zealand and Chatham Group, from the Admiralty Surveys of the English and French marine, from the observations of the officers of the New Zealand Company, and from private survey and sketches. Two sheets, with plans of the harbours, sailing directions, &c.

North America, exhibiting the recent discoveries, geographical and nautical; drawn chiefly from the authorities of M. de Humboldt, Lieut. Pike, Messrs. Lewis and Clarke, Sir Alex. Mackenzie, Mr. Hearne, Col. Bouchette, Captains Vancouver, Ross, Parry, and Franklin, Beck, Bache, Denon, and Simpson, and Kellogg; also describing the boundary lines between the territories of Great Britain, the United States, and the Mexican and Central States. Seven sheets.

Map of the Province of Canada, with part of New Brunswick to Halifax, and the United States from Boston. One sheet.

South America, drawn chiefly from the original manuscript maps of his Excellency the late Chevalier Pinto; likewise from those of the Brazil provinces, surveyed by Jose Joaquim de Rocha, a magistrate resident many years in those countries; also the Capitania of San Paulo, by Jose da Costa Ferreira. The late Spanish territories are extracted from the surveys of El Padre Francisco Manuel Sobrevieja and others; together with the most authentic edited accounts of those countries by Humboldt and Schomburgk; showing also the boundaries and states. New edition. Eight sheets.

Africa, compiled from authentic accounts of travels, both ancient and modern, including those performed under the patronage of the African Association, by Messrs. Hornemann, and Houghton; also those of Lord Valentia, Sir Home Popham, Captains Lyon, Tuckey, and Clapperton, Messrs. Burrow, Bowditch, Brown, Bruce, Burchell, Knies, Salt, Leing, Denham, Landers, and Richardson, with the nautical surveys and observations of Captains W. Smith and Owen, R.N., assisted by the reports of the Missionary Societies. Six sheets.

Educational Maps. The World, on the globular projection, containing the most recent information. Eight sheets. Europe, drawn from the latest documents, showing its political divisions, cities, and principal towns; Assa, exhibiting its political divisions, from the best authorities; Africa, constructed from the most recent travels and other authentic sources; America, showing its political divisions, and containing the recent discoveries in the arctic regions; each in four sheets.

England and Wales, drawn from the triangulation of the Ordnance Survey, and other sources of information; showing the physical features, cities, and market towns; Scotland, with its cities, market towns, and physical features; Ireland, reduced from the Ordnance Survey, showing its cities, market towns, &c.

Twelve-inch globes, containing the modern discoveries, and the places of the stars on the celestial globe calculated to the present year; on high mahogany stands, &c.

A map may be defined as a projection of the surface of the globe on a plane surface. As the form of the earth is nearly that of a sphere, it is evident that the only map which can truly represent the positions of places is that on the surface of a globe. That projection which comes the nearest to the true representation of the globe is

termed the "globular." On Mercator's projection some of the difficulties attendant upon circular projection are avoided: all the lines are right lines, and all the meridians are equidistant. The advantages of this projection are, that the bearing of every place is true with respect to other places, and distances may be measured correctly from it; but the spaces between the parallels of latitude increase as they recede from the equator, and in high latitudes the departure from truth is great.—J. G.]

176 LOVEJOY, GEORGE, *Reading, Berks*—Inventor.

Permanent, or indelible black writing-ink for public records, not affected by age or any of the ordinary chemical agents.

177 SHEAN, W. F., 14 *Halsey Terrace, Cadogan Street, Chelsea*—Producer.

Class roll, or school attendance register book.

178 WILSON, ROBINSON, *Whitehaven*—Producer.

The Descent from the Cross, executed in ten weeks with steel and crow pens and Indian ink. The outlines were taken from an old print, and no brush was used, the shading being performed with a piece of paper when the strokes were damp. On each sheet alone are upwards of two thousand strokes with the pen, imitating line engraving.

179 GALBRAITH, W. J. T., 26 *Pennett Street, Blackfriars Road*—Inventor and Manufacturer.

Indelible writing fluids.

180 OWEN, HORATIO, *Falcon Square*—Designer and Proprietor.

Specimen of typography, being the speech of His Royal Highness Prince Albert, at the Mansion House Banquet, together with translations into the German, French, Italian, Turkish, and Arabic languages.

181 KRONHEIM & Co., 32 *Puternoster Row*—Manufacturers.

A variety of fancy borders.

182 STEPHENSON, BLAKE, & Co.—Producers.

A various assortment of printing type.

183 DAVIS, J., 1 *Duke Street, North Parade, Bath*—Inventor and Manufacturer.

New system of music, and general instructions for the pianoforte, organ, pedal harp, &c.

184 REED & PARDON, 1, 2, & 3 *Loxell's Court, Puternoster Row*—Producers.

Various specimens of letter-press printing.

185 TAIT, W. J., *Church Street, Rugby*—Producer.

A variety of school outlines.

186 HUME, Rev. W. E., *White Colne, Halstead, Essex*—Producer.

The Jubilee Almanack, for A. D. 1851: printed in gold on vellum, with poetical illustrations, in a frame and glazed.

187 RAMSAY, ROBERT, 2 *Greenwise Place, Edinburgh*—Designer and Executor.

Specimen of ornamental typography, composed of marble borders, rules, &c., forming a front view of Free Church College, Edinburgh.

- 188 WASON, RIGBY, M.P., *Corwar, near Girvan, Ayrshire*—Designer.

Plans, showing the method of reclaiming waste land; on a new principle, applied by Rigby Wason, Esq., between the years 1840 and 1850, to an estate of about 4,000 acres, formerly a wild moor without any road, and with only a few patches of cultivated land surrounding the house; it now bears excellent crops of corn and grass, and will, in a few years, be all reclaimed.

- 189 BARKER, J.—Inventor.

Casts from wood matrices for the use of silk, cotton, and other printers.

- 190 MEEK, G., 2 *Crane Court, Fleet Street*—Manufacturer.
Ornamental perforated papers, representing lace and crochet work.

- 191 TAPPERELL & INNES, 2 *Winchester Street, Old Broad Street, and Queen's Arms Hotel, Cheapside*.

Ancient map of the Cities of London and Westminster, and the adjacent districts, as they appeared in the early part of Queen Elizabeth's reign. In this ancient map and drawing, the palace of Westminster, the government and public edifices, &c., are very clearly indicated.

- 192 WHITBREAD, JOSIAH, 142, *Oxford Street*—Proprietor.

New plan of London, drawn from authentic surveys, on a scale of 3 inches to a mile.

- 193 RUFF & Co., 2 & 3 *Hind Court, Fleet Street*—Producers.

Map of London and its environs, in six sheets, on a scale of 8 inches to the mile, showing the division of parishes, &c.

- 194 RICKMAN, WILLIAM CHARLES, 21 *Park Side, Hyde Park Corner, and Pole Hole, Wexford*—Inventor and Designer.

Portfolio bracket, for the purpose of holding portfolios of drawings, prints, &c., and exhibiting their contents to advantage. It is attached to the wall, and is made to open and shut: carved in grenadillo wood.

- 195 BESLEY, ROBERT, & COMPANY, *Fann Street, Aldersgate Street*—Manufacturers.

Specimens of printing types. A complete series of Elizabethan or church text, with initial letters of the Tudor period. Typographical ornaments taken from the remains of Nineveh and Etruria, court hands, Persian, Syriac, and Arabic.

Modern type-founders' mould and matrix, with types attached.

- 196 BARRITT & Co., 173 *Fleet Street*—Producers.

Specimens of ecclesiastical binding:—

Royal folio Bible, carved wood boards, covered with Turkey morocco, without cut or join; metal ornamental mountings.

Royal folio Common Prayer, polished oak boards, ornamental metal hinges, and clasp (the hinges and clasp produced by electrotype).

Imperial quarto Bible, Gothic oak boards.

Imperial quarto Bible, carved wood boards, covered with Turkey morocco, without cut or join.

Royal quarto altar service, ultramarine border to pages, carved wood boards, covered with Turkey morocco; corners and centre metal mountings, produced by electrotype.

Royal quarto altar service, velvet; Gothic metal mountings, produced by electrotype.

Sundry small Common Prayers and Church Services, perforated and engraved; solid metal covers, &c.

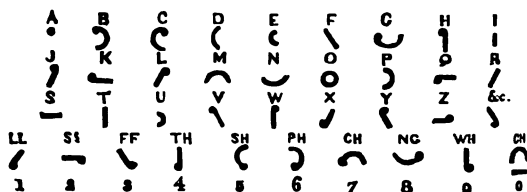
- 197 PITMAN, ISAAC, 5 *Nelson Place, Bath*—Inventor.

Chart of the phonographic and phonotypic alphabets. The Bible, &c., printed phonetically, and the Testament in phonetic short-hand.

[The phonographic or phonotypic systems have this peculiar principle, that words are written and printed as they are pronounced. Since pronunciation differs with districts, it appears difficult to decide upon a standard, and if decided upon by one district exclusively, then the phonographic system becomes exposed to more objections than the ordinary orthography.—R. E.]

- 198 SOCIETY FOR TEACHING THE BLIND TO READ, *Avenue Road, Regent's Park*—Proprietors.

Embossed books for the blind. The characters which have been made use of for letters are raised above the surface of the paper, so that the sense of touch may supply the want of sight. These characters, which are represented in the annexed cut, are simple in their form, being a straight line, a curved line, and a dot placed in different positions; by this means the complication of strokes in the letters of the alphabet is avoided, and the pupils are enabled with ease to distinguish one letter from another.



As the finger cannot pass over a word so rapidly as the eye, greater fluency is secured by the use of contractions similar to those employed in short-hand writing. Many who have lost their sight in advanced life, and whose sense of touch has become less acute from hard work, have been enabled to read this simple alphabet, when they have found it impossible to distinguish more complicated characters. An adequate knowledge of the system can be acquired by a pupil in six months, and by many in a shorter period. The system was proposed by the late Mr. Lucas, of Bristol, and was reduced to practice by the Rev. J. W. Gowing, in the year 1842, under the direction of the London Society for teaching the blind to read. The greater portion of the Scriptures, with the liturgy of the Church of England, and various books of elementary instruction, have already been published in these characters.

Cyphering boards for the blind. The boards being perforated with square holes, types with simple characters raised in their ends can be arranged in any order. Five characters similar to those employed in reading are used in different positions, each having a numeral value.

Maps for the blind. The land is raised above the water, and cities, mountains, rivers, and boundary lines are all marked so as to be easily felt.

Geometrical boards for the blind.

Specimen of embossed copies, used for instructing the pupils in the common system of writing, the paper used being prepared with embossed lines.

Apparatus for enabling the blind to emboss Lucas's characters, and thus communicate with each other. The characters are raised on a stamp, having ten arms, fitting into the aperture of a slide so that the letters cannot be incorrectly formed; this slide moves along a bar, and indicates, by means of a rack, the distance it has been moved. The lines are kept equidistant by the bar which moves down the board, which is retained in its position by a simple contrivance.

A specimen of music for the blind, in raised characters, each character denoting both the sound and its length,

the staff is dispensed with. The music can be by means of the embossed copies. boards for the blind. The black squares are and the pieces have pegs to fasten them in the The black pieces are distinguished by a point at The last three articles were invented by Mr. W.

ness of basket work and knitting done by the the institution, Avenue Road, Regent's Park.

vention of characters in relief was among the measures resorted to for the instruction of t Mr. Gall, of Edinburgh invented an alphabet up ciple, called "the triangular." Moveable letter grooves, were afterwards employed, but abandoned. A string alphabet, like the "quipos," or knotted Peru, for distant communication, was proposed, other attempts for this purpose were made, until the art of printing in relief; this was then the Mr. Gall's triangular alphabet. By the system the repetition of numerous letters is avoided; characters are used; particles are mostly represent initial letters, a system which is followed upon sent repetition of a word.—R. H. N.]

W. H., *Troy House, Maningtree, Essex*—
Designer and Engraver.
man of penmanship.

ANDERSON, DUNCAN, *Glasgow*—Proprietor.
son in his robes, from the lithograph of the en- of Gerard's picture.
of Watering-place, from the engraving.
baptizing the Eunuch, from Browne's engraving picture.
quipped with a common pen, in China ink, by Andrey, a deaf mute, and pupil of the Glasgow on for the Education of the Deaf and Dumb.

ITHEM AND FOREIGN BIBLE SOCIETY, *Earl Street, Blackfriars*—Producers.

mens, consisting of 165 books, in different lan- from the 170 versions of the Holy Scriptures, whole or in part, which have been published or indirectly by the Society, and of which 118 translations never before printed; and of which an twenty-four millions of copies have been cir- culate its institution in 1804.
specimens of four editions of the English Bible, the improvement made between the years 1816 , in reference to quality of paper, printing, and at an average reduction of 62 per cent. in the s.

Western Europe.

ble.
in.
le.
(Vernacular).
(Roman).
le.
de (Martin).
de (Osterwald).
de (De Sacy).
tament.
d German Testament
sa.
l English Testament.
agus Testament.
le (Scio).
ament.
agus, St. Luke.
agus, St. Luke.
agus, Old Testament.
agus, New Testament.
l Latin Bible.
Bible (Peters).
Bible (Almeida).

Northern Europe.

Icelandic Bible.
Swedish Bible.
Lapponee Testament.
Finnish Bible.
Danish Bible.
Paroese and Danish St. Luke.
Quanian or Norwegian Lapponee Testament.

Central Europe.

Dutch Bible.
Flemish Bible.
German and Hebrew Old Testa- ment.
Lithuanian Testament.
Samogitian Testament.
Polish Bible (Roman).
Polish Bible (Gothic).
Upper Wendish Testament.
Lower Wendish Testament.
Bohemian Bible.
Hungarian Bible.

Central Europe—continued.

German Bible.
Hungarian Wendish Testament and Psalms.

Southern Europe.

Italian Bible (Diodati).
Italian, with Latin Psalms.
Latin Bible.
Romanese New Testament.
Kaghadine New Testament.
Piedmontese New Testament.
Piedmontese with Italian, Psalms.
Piedmontese with French, St. Luke and St. John.
Vandois with French, St. Luke, and St. John.
Bulgarian Testament.
Greek New Testament (Ancient).
Greek Bible (Modern).
Greek with Latin, Testament.
Turkish Bible.
Turkish Bible (Greek characters).
Turkish Testament (Armenian character).
Wallachian Testament.
Serbian Testament.
Albanian with Modern Greek, New Testament.

Russia.

Russian Testament (Modern).
Slavonic and Modern Russian New Testament.
Dorpat Esthonian New Testament.
Rovet Esthonian New Testament.
Lettish Bible.
Bremen St. Matthew.
Mordvinian New Testament.
Tcheremissian Gospels.
Tschewaschian Gospels.
Orenburgh Tartar Testament.
Karelian St. Matthew.
Turkish Tartar Pentateuch and Joshua.

Caucasian and Border Countries.

Georgian New Testament (Ecclasiastical).
Georgian New Testament (Civil).
Armenian Testament (Ancient and Modern).
Armenian Testament (Ancient and Ararat).
Armenian Testament (Modern).
Ararat and Modern Armenian Testament.
Trans-Caucasian Tartar St. Matthew.
Armenian Testament (Ararat).
Armenian Psalms.

Semitic Languages.

Hebrew Old Testament.
Hebrew New Testament.
Arabic Bible.
Judæo Arabic, four books of New Testament.
Syriac Bible.
Syriac and Chaldean Testament.
Carshun Testament.
Syro Chaldean Gospels.

Persia.

Persic Testament (Martyn).
Persic Old Testament (Glen).
Judæo Persic, four Gospels.
Pushtoo Testament.

India.

Sanscrit Gospels and Acts.
Hindustani Testament (Roman).
Urdu Persian, portions of Old Testament.
Urdu Persian, Gospels and Acts.

Northern and Central India.

Bengalee, portions of Old Testa- ment.

Northern and Central India—continued.

Bengalee and English, Matthew and John.
Bengalee Testament (Roman).
Bengalee, with English Testament (Roman).
Uriya Bible.
Hinduwæ Old Testament.
Harrottee Testament.
Bikaneera Testament.
Moultan Testament.
Porjabee Testament.
Cachemirian Testament.
Nepalese Testament.

Southern India.

Teluga Testament.
Canaræ Bible.
Tamil Bible.
Malayulm Testament.
Tulu Testament.
Kankubâ Testament.
Mahatta Testament.
Gajasttee Testament.
Cateche St. Matthew.

Ceylon.

Pali Testament.
Sinhalese Bible.
Indo-Portuguese Testament.

Indo-Chinese Countries.

Annamite Testament.
Khassee St. Matthew.

Chinese Empire.

Chinese Bible.
Chinese, St. Luke and Acts.
Manchæe Testament.
Mongolian Old Testament.
Mongolian New Testament.
Calmae Gospels, &c.

Hither Polynesia.

Malay Bible (Roman).
Malay Bible (Arabic).
Malay Testament (Low).
Javanese Testament.
Dajak Testament.

Further Polynesia.

Tahitian Bible.
Barotonga Testament.
New Zealand Pentateuch.
New Zealand Joshua and Psalms.
New Zealand Testament.
Malagase Genesis and New Testament.
Famooan Testament.
Fonjeoon Testament.

Africa.

Coptic with Arabic, Psalms.
Coptic with Arabic, Gospels.
Ethiopic Testament.
Amharic Bible.
Herber St. Luke.
Bullom St. Matthew.
Mandingo St. Matthew.
Accra St. Matthew and St. John.
Yoruba Romans.
Namacqua, St. Luke.
Sechuana Testament and Psalms.
Caffra Testament.
Sesuto Gospels.

America.

Greenlandish Testament and Psalms.
Esquimaux Pentateuch and Joshua.
Mohawk, St. John.
Chippeway, St. Matthew.
Creolese Testament.
Negro Dialect of Surinam, Tes- tament and Psalms.
Esquimaux Testament.
Aimara with Spanish, St. Luke.
Mexican St. Luke.

202 HARRISON, ARTHUR PRICHARD, 190 Western Road, Brighton Designer.

FRANC-L arms, printed and stained in blazonry colours, granted as hereditary bearings to the nobility by King Henry III., dated 1245. Roll of arms granted as heredi-

tary bearings to the knights companions at the siege of Karlaverock, by Edward I., 1300. Roll of arms granted by King Richard II. to his nobility, dated 1377. Roll of arms of all the Knights of the Garter, from their instalment; plates and ancient records in St. George's Chapel and Windsor Castle. Tournament roll of King Henry VIII., A.D. 1510. Fac-simile of Magna Charta, with arms of the barons, &c., dated 1214. Death warrant of King Charles I., and of Mary Queen of Scots. Fac-simile of illuminated prayer by Henry VII. Genealogy of sovereigns of England, with arms.

203 BELL, Major G., 17 Cecil Street, Strand—Inventor.
Tabular presentment of universal, historical, literary, and artistical time, extending over a surface of nearly 4,000 years, in 25 diagrams.

204 STRANCEWAYS, JOHN, 18 Harpur Street, Red Lion Square—Producer.
New chart of British biography, from the commencement of the 15th century to the present time.

205 ROYSTON & BROWN—Inventors.
Specimens of bank-notes and bills of exchange, engraved by a patent process, to prevent forgery. Various account books.

206 WALTON, T., King Edward VI. School, Birmingham—Producer.
Outline chart of general history.

207 CLEAVER, WILLIAM JONES, 46 Piccadilly—Designer.
Oak and glass case, containing an assortment of Bibles and books of Common Prayer, and a selection of other

books in ancient and modern bindings. Exhibited for the colours of the leather, general design, and workmanship.

208 SPIERS & SON, Oxford—Designers and Manufacturers.
Envelopes and paper, embossed in colours, from college and other dies.
Models of six cathedrals, Osborne House, Martyrs' Memorial, Oxford, &c.

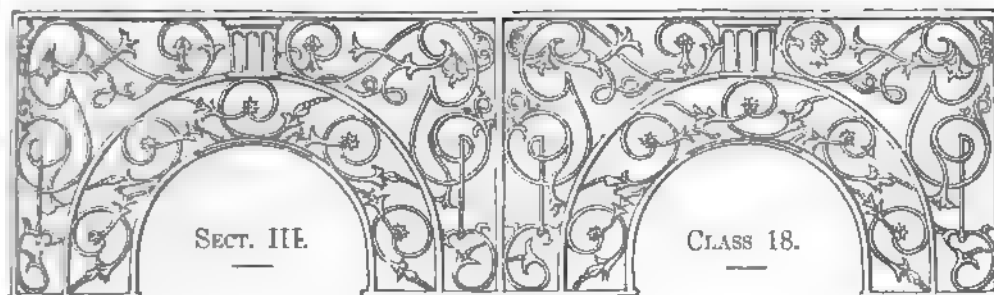
210 WATSON, WILLIAM, 8 George Street, Pocklington—Producer.
Plan of the town of Market Weighton, East Riding, Yorkshire.

211 COMMITTEE OF THE NATIONAL SOCIETY FOR PROMOTING THE EDUCATION OF THE POOR—Depository, Sanctuary, Westminster.
Specimens of new maps of British geography, models of school apparatus, reading lessons, &c.

212 HARRISON & SON, St. Martin's Lane—Printers.
Specimen of the cuneiform character used in the Babylonian inscriptions discovered by Mr. Layard, now in the British Museum. The first perfect fount of this complicated type ever cast in moveable and combining pieces. Designed and cut by the exhibitors.

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Darius. rex.





WOVEN, FELTED, AND LAID FABRICS, DYED AND PRINTED.

INTRODUCTION.

THE arts of the colour-printer and dyer form the subject represented by this Class. These arts have made most important progress during late years. At first, taught only by a long and varied experience, the imparting of colour was restricted to the use of a few comparatively simple substances for the extraction of colour, and its application to various fabrics. But since chemistry has been allowed to occupy a part of the attention of the manufacturer, a very different result has arisen. The indications of experience are confirmed by the teachings of philosophy, and in a large number of instances a vast economy of material, time, and labour, has been effected. In addition, chemistry has brought to light new compounds, and new means of obtaining dyes and colours of great brilliance from a few simple combinations. It is consequently now almost universal to find that attached to the extensive works of the dyer and colour-printer, is a large laboratory fitted up for chemical investigations, and the processes developed in which are often the source of very great commercial prosperity.

This Class includes Woven, Spun, Felted, and Laid Fabrics, when exhibited as specimens of printing or dyeing. In the Sub-Class A. are included the Printing or Dyeing of Woollen or any Mixed Substances; B. Includes Printed Calicoes, Cambrics, Muslins, Velvet, and Velveteens; C. Dyed Cotton Goods; D. Dyed Linen Goods; E. The Dyeing or Printing of Leather, Hair, Fur, &c.

The special part of the Building devoted to objects in this Class is that included by Areas L. M. and N. 2 to 5, and O. 3 and 4. But throughout the Building specimens of the art of the dyer in the production of the most rich and beautiful colours are presented in objects which appear, properly, in other Classes. The Turkey-red calico and cloth employed in its decoration, and in the indication of its various departments, avenues, &c., form an interesting instance of this kind.

The print-works of Lancashire, and particularly of Manchester and its vicinity, form the most extensive sources of printed and dyed articles. Glasgow, Carlisle, Crayford, Paisley, and other places, also contain important works of a somewhat similar description. The origin of cotton printing appears to have taken place in the vicinity of the metropolis in 1675.

During the last half-century, a surprising development of printing in colour and dyeing has taken place. It is estimated that at its commencement the annual quantity of cotton printed was 32,869,729 yards. But in 1831, this quantity had attained the enormous increase of 347,450,299 yards; and it has since still further increased. The print-works of Lancashire, and other places, form a surprising spectacle of the operation of chemical and mechanical prices on the great scale. That which was formerly the labour of weeks, is now performed in a day. A piece of cloth is printed at the rate of hundreds of yards in a day. On one side of a machine-room it ascends moist, with colour from the engraved copper cylinder; on the other it descends dried, ready for the final processes. The printing machines are marvels of ingenuity: the pattern is applied by the engraved surface of one or more copper cylinders, which have received the pattern from a small steel cylinder, or "ball," capable of impressing several with the same design, and thus saving the cost of repeated engraving. At first only one colour could be applied; now from six, or even eight and ten colours, are applied in constant succession. These machines perform their work with great accuracy and speed, and produce all the commoner patterns seen in daily use; but hand labour is still employed, even in these works, for fine or complicated work, and more particularly for printing mousseline-de-laine dresses, &c. The goods thus printed are exported in immense quantities to all parts of the world, a large portion being also retained for home use. For foreign countries a certain peculiarity of chromatic arrangement is necessary, in order to render the articles adapted to the taste of purchasers.

The art of the dyer in towns is a manufacture on a smaller scale, and carried on generally in small establishments devoted to that purpose. But extensive dye-works exist, which are employed in imparting various colours to cloth, &c., on the great scale. To the prosperous pursuit of either of these arts, it is beginning to be more and more widely felt, that an enlightened and philosophical mind is of the first consequence. And the number, extent, and importance of many of the establishments where they are extensively carried on, is a gratifying indication of the present position of those who are occupied in such pursuits.—R. E.

- 1 **EVANS, DAVID, & Co., 121 Cheapside, and Crayford, Kent**—Manufacturers and Printers.
Bandanna handkerchiefs, manufactured in India.
British bandannas, manufactured at Macclesfield, from Bengal and China silk.
Spun bandannas, manufactured in Lancashire.
Ladies' silk dresses. Table covers.
Registered designs.
- 2 **BAKER, TUCKER, & Co., 30 & 31 Gresham Street**—Silk Manufacturers and Printers.
British and East India silk handkerchiefs and dresses, printed in London. Registered designs.
- 3 **LIDDIARD & Co., Friday Street, Cheapside**—Manufacturer.
Printed mousseline-de-laines, barèges, &c.
- 4 **INGLIS & WAKEFIELD, Busby Print Works, near Glasgow**—Manufacturers.
Printed mousselines-de-laine on cotton warp; printed cashmeres, balzarines, cottons, and jaconets; the dahlia, a patented colour. The designs are all registered.
- 5 **ANDREWS (HUGH), SONS, & GEE, 55 Friday Street**—Producers.
Printed cotton, muslin, woollen, and mixed fabrics.
- 6 **DEVAS, MINCHENER, & ROUTLEGE, 24 Laurence Lane**—Proprietors.
Specimens of printed cambrics and muslins, exhibited as cheap and useful productions for the middle class.
- 7 **WELCH, MARGOTSON, & Co., 17 Cheapside**—Manufacturers.
A selection of silk handkerchiefs, manufactured from China silk, and India corahs, printed by the exhibitors.
Printing blocks for the purpose of shewing the process of Bandanna printing.
- 8 **WILKINSON, WILLIAM, 89 Watling Street**—Manufacturer.
China cord "pongee" handkerchiefs, and China and grey twilled bandannas, British manufacture. India corahs, specimens of madder red, cochineal, crimson, and other courses of work. Specimens of printed and dyed work, in various stages of manufacture.
- 9 **SWAN & EDGAR, Piccadilly, and Regent Street**—Proprietors.
Spitalfields silks, velvets, &c., manufactured by J. Balance & Sons, Stone & Kemp, and Winkworth & Procters.
Printed muslins, butterfly, rose and convolvulus patterns. Printed by Hargreaves Brothers.
- 10 **LAW & SONS, 37 Monkwell Street**—Manufacturers.
Embossed silk and velvet.
Specimen of cloth used for bookbinding.
Embossed velvet and furniture-linings for decorations.
Embossed grounds for paper-hangings.
- 11 **CROCKER, J. & A., 51 Friday Street**—Manufacturers.
Harness woven muslins for curtains. Complete drapery, blind and curtains of harness woven muslin, showing its adaptation for window decoration.
Printed cotton for furniture uses; the colours produced by machine, and by a combination of machine and block-printing.
- 12 **KEYMER, JAS., Laurence Lane**—Producer.
Silk bandanna handkerchiefs in needlework style, flowers, small or Fichus; and a study, commemorative of the Great Exhibition. Printed at the works of Augustus Applegath, Dartford.
- 13 **MAIR, SON, & Co., 60 Friday Street, London, and 163 Ingram Street, Glasgow**—Manufacturers.
Twilled bandannas and cambric handkerchiefs.
- 14 **MCALPIN, STEAD, & Co., Cummersdale, Carlisle**—Designers and Printers.
Machine and block chintz furnitures, upon cotton velvet and calico.
- 15 **HINDLEY, C., & SONS, 134 Oxford Street**—Designers and Manufacturers.
Printed chintz furniture: original designs, English production.
- 16 **FOSTER, PORTER, & Co., 47 Wood Street, Cheapside**—Manufacturers.
British and East India silk handkerchiefs, printed in London.
Block employed in printing handkerchiefs.
Silk, thread, woollen, leather, and silk-plush gloves.
Bandannas. Parasols. Ribbons. Fancy hosiery—polka jackets, gaiters, hoods, hose, &c.
- 17 **WILSON, —, Producer.**
Specimens of cloth for bookbinding.
- 18 **WELCH, THOMAS, Merton Abbey, Merton**—Manufacturer.
Printed cloth drawing-room table-covers, of various designs and colourings.
Embossed cloth drawing-room table-covers, different designs and colourings.
- 19 **WALFORD, RICHARD, 27 Laurence Lane**—Proprietor.
Printed silk handkerchiefs. East India silk manufacture, printed in England.
- 20 **JOHNSON, R. J.**—Producer.
Specimens of dyed goods.
- 21 **SWAINEON & DENNY, 97 New Bond Street**—Designers and Printers.
Chintzes for dining-rooms, libraries, &c. Chintz, imitation of drapery, for wall-hangings, curtains, &c.; of tree, flowers, drab leaves, &c.; of group of flowers and ribbon; of the acacia; of group of flowers in rustic panel; and of birds and flowers, for drawing-room curtains, &c. Chintzes suitable for bed-furniture, &c., 26 inches wide.
- 22 **UNDERWOOD, WILLIAM, 1 Vere Street, Oxford Street**—Manufacturer.
Printed cloth table cover, commemorative of the Great Exhibition. This table-cover is represented in the accompanying Plate 37. The printing of this cover has taken 223 blocks and copper-plates. In the centre are the arms of Great Britain, surrounded by those of the principal nations of the globe, with suitable inscriptions.
- 23 **CLARKE, ENOCH, Neate Street, Coburg Road, Old Kent Road**—Manufacturer.
An assortment of printed and painted japanned table-covers.
- 24 **YATES & TAYLOR, 42 Gutter Lane, Cheapside**—Manufacturers and Proprietors.
Printed and embossed table-covers, for ornamental table furniture. Shaded style of work, giving a velvet-like appearance, similar to needlework, from one impression.
- 25 **THOMSON BROTHERS & SONS, 1 Mosley Street, Manchester**—Producers.
Printed cambrics and mousseline de laines, cotton warps, shot silk, and worsted; printed cambrics, &c., silk warps, shot silk.
- 26 **BURD, JOHN, & SONS, Manchester**—Printers.
Machine-printed calicoes, madder and steam colours.
Block-printed calicoes, steam colours.
Machine-printed muslins, madder and steam colours.
Block-printed window blinds.
Printed quilts.

**WALGLISH, FALCONER, & Co., Lennox Mills,
Lennoxtown, Stirling—Printers.**
prints and muslin prints.

**STRAIKES PRINTING COMPANY, Manchester—
Producers.**

ons of machine printing on cotton velvet; eight
produced by one operation, at the rate of sixty
minute.
me on calico; eight colours. Steam work.
ons of madder work.

**ELSON, KNOWLES, & Co., 11 George Street,
Manchester—Printers.**
and mousseline-de-laines, crimson ground style.
steam printing.
furniture showing fourteen colours, chintzes and
nts, all the colours printed at one time by cy-

**ER, E., & Co., Dinting Vale, Glossop, and Manchester
—Producers.**
r of calico prints; moderate in cost, adapted for
of markets, and produced by machine through-

ELS, JOHN, & Co., Manchester—Manufacturers.
and Turkey-red velvet. Black velveteen. Drab
Drab eight-shaft cord. Black satins. Printed
bert tweeds. Moleskins. Holsteins. Velveteens.
rs. Furniture velveteens. Mock quiltings and
ones. Diamond and welted quiltings and satins.

KEY, CHARLES, & Co., Manchester—Proprietors.
and printed cotton trouser cloth, in imitation of
possesses the appearance and durability of
cloth.

HERMAN, HENRY, & Sons, Manchester—Producers.
cloth used for upholsterers' purposes, as cur-
., so produced that they will not tarnish.
suitable for ladies' dresses, gentlemen's coats,
for books, and embellishments of various kinds.

LEV & CRAVEN, 61 Mosley Street, Manchester.
prints, fast lilacs, madder colours; chocolate
garancine work; and two and three coloured
fancs.
e of a new "resist" purple, that will throw off
a, dark purple, catechu, brown, or red grounds.

WANWICK & JOHNSON, Manchester—Producers.
d calico and printed muslin.

**HOYLE, THOMAS, & Sons, 58 Mosley Street,
Manchester—Manufacturers.**
d calicoes, black, purple, and whites; light pur-
brunettes, &c.
d cambrics, in all colours, suitable for children,
d patterns for dresses.
d muslins. Checked and plain jaconets.
d mousseline-de-laines and llamas, both mixed

ine-printing is performed in the following man-
e fabric is drawn by power over one or more en-
pper cylinders, the lower part of which revolves
ugh containing the colour. By an ingenious
ent, a blade of steel, or other metal, called a
removes the superfluous colour, leaving only the
ions on the cylinder charged therewith. The
to which the fabric is subjected causes it to
his colour, and it is then carried upwards into a
a high temperature where it is dried, and returns
rgo further processes of preparation. At first,
coloured pattern could be communicated to the
ut now seven or eight cylinders are not unfro-

quently used in the same machine, each applying a dif-
ferent colour to the fabric as it passes forward, and each
so adjusted as to cause the colour to fall precisely in the
proper place, so as to complete the pattern. Machine-
printing is carried on to an enormous extent in Manches-
ter.—R. E.]

**37 STEINER, T., & Co., Church, near Accrington, Manchester
—Manufacturers and Inventors.**

Cotton fabrics, dyed Turkey-red and printed in various
colours.

**38 LEDDIARD & Co., London; HARGREAVES BROTHERS,
& Co., Manchester—Manufacturers.**

1. A butterfly chints muslin, displaying a combination
of permanent colours.
2. A rose trail chints muslin, in permanent colours,
in three varieties of ground.
3. A moss-rose chints, upon organdie muslin.
4. A bouquet chints, on two varieties of ground, with
combination of permanent colours, by Mercer's patent
process.
5. A design of one-block printing, exemplifying, by a
variety of coloured grounds, the nature of Mercer's patent
process, with the ordinary colours.
6. The same design printed by the ordinary processes
and colours.
7. A design upon lobelia crimson ground, showing a
new application of safflower for dyeing or for printing
purposes, where white is not required, uniting permanence
with brilliancy of colour.
8. Lobelia crimson plain muslin.
9. Lobelia crimson plain cotton satin.
10. Lobelia crimson and other dyed cotton velvets.
11. Silver dove, a new mineral colour, not liable to be
injured by the influence of air or light.
- 12, 13, and 14. Designs upon various shades of per-
manent plain colour muslins.
15. A demi-chintz upon muslin, in three varieties.
16. A second design of the same class.
17. A design upon white figured muslin, in three vari-
eties.
18. A second design of the same class.
19. A chrysanthemum chintz upon cotton satin in two
varieties.
20. A bouquet chintz, in permanent colours, in two
varieties; upon cotton satin.
21. A moss-rose chintz, of similar class and materials.
22. A rose-bud chintz, of the same class and material.
23. White sprigs upon black cotton washable satin.
24. An Indian chintz, printed in permanent colour,
upon Horrocks's long-cloth.
25. A full chintz, also printed on the same.
- 26, 27. Designs, showing Mercer's patent process for
colours applied to machine printing.
- 28, 29, and 30. Designs, produced by the usual method
of machine printing and the usual processes, in three
varieties.
- 31, 32, and 33. Designs, to show Mercer's patent pro-
cess applied to another style of machine printing.
- 34, 35, and 36. Designs, to show the ordinary colours
used in machine printing, in four varieties.
- 37, 38, and 39. Designs in the floral style of machine
printing, in two varieties.
- 40, 41, 42, and 43. Designs in the foliage style of ma-
chine printing.
- 44, 45, and 46. Floral designs in the same style.
47. A bouquet chintz, upon silk material.
48. The same design upon silk, cotton, and wool, united,
by Lightfoot's patent Duplin process.
49. A butterfly chintz, upon the same material, and by
the same process.
50. A design, upon silk, in two varieties.
51. A bunch of lilac, a design printed upon pure wool.
52. The same design upon a cotton and wool mixed
fabric, by Lightfoot's process.
53. The same, upon cotton, silk, and wool united, also
with same process.

54. A larger lilac blossom design, printed upon pure silk.

55. The same design upon cotton, silk, and wool, mixed fabric, by Lightfoot's process.

56. A robe skirt of a graduated design, assisted by graduated rainbow printing upon pure silk.

57, 58, and 59. The same design printed upon mixed fabrics, of cotton and wool, by Lightfoot's process.

60. An Indian chintz, design upon pure wool.

61. The same design upon mixed fabric of cotton and wool.

62. A full chintz, effected by only two block printings, upon a mixed fabric of cotton and wool.

[Formerly the application of coloured designs to fabrics of various kinds was entirely effected by what is called block-printing, and which, in fact, closely resembles type printing. A block of wood or metal, or a combination of both, being engraved with the pattern, received the colour by the ordinary means, and this was then transferred by hand to the fabric. For every different colour a different block was required, and in complicated patterns, with many colours, the process was excessively tedious. It is, however, still largely employed where great care in the application of the colour and sharpness of definition in the pattern is required, but block-printing can only be remunerative in the better descriptions of goods, as the infinitely more rapid and economical process of cylinder printing has almost superseded it for the production of those of commoner kinds.—R. E.]

39 SALE, JOHN NICHOLAS, *Manchester*—Producer.

Collection of shirtings, printed by machine. Collection of cottons, printed by machine and block.

Specimens of Irish linen, bleached, printed, and finished by the exhibitor.

40 BRADWELL & ADAMS, *Arduick, Manchester*—Producers and Designers.

Printed velveteens, in different colours; design, a memento of the late Sir Robert Peel, Bart.

41 SALIS, SCHWABE, & Co., *Manchester*—Producers.

Printed cotton cambrics, or calicoes. Printed cotton muslins.

42 BENECKE, WILLIAM, & Co., *Manchester*—Producers.

Printed calicoes, muslins, furnitures, and velvets; and warps, after printing, manufactured by Thomas Knight & Co., *Manchester*.

43 ANDREWS, WILLIAMS, & Co., *Tipping Street, Arduick, near Manchester*—Producer.

Specimens of Kesselmeyer and Mellodew's patent cotton velvet, as dyed by the exhibitors.

44 KESSELMYER & MELLODEW, *23 Cooper Street, Manchester*—Inventors and Manufacturers.

Patent velvets and velveteens, partly manufactured of cotton, and partly of cotton warp and linen weft, dyed and padded, various colours, and finished in imitation of silk velvet. Cotton velvet and velveteen of the old make.

45 WOODCROFT, JOHN, & Co., *Salford*—Printers.

Velvet and velveteen. Cable cord. Fancy elastic hair cord. Beaverteens. Satintop. Diagonal tweed. Constitution cord. Fancy cut thickset cords, and tabby cord.—All grey as from the loom, and specimens of each printed in various patterns and colours.

46 GREENWOOD & BARNES, *Irwell Springs, Bacup*—Dyers.

Fancy cotton muslins, dyed Turkey red; varying only in pattern.

47 SIMPSON & YOUNG, *Foxhill Bank, Accrington, and 23 Mosley Street, Manchester*—Producers.

Balzarines, barèges, and mousseline-de-laines, mixed fabrics, and muslins of cotton texture, in various combinations of colourings; printed by machine.

Cambrics in various combinations of colourings, in madder and steam-work, printed by machine.

Cotton velvets, printed by machine.

48 MERCER, JOHN, *Accrington*—Inventor.

Specimens of cotton cloth, printed, dyed, and in different stages of manufacture: prepared by a patent process. This patent consists in subjecting cotton, and other fibrous materials to the action of caustic soda of suitable strength and temperature, whereby the fibres become contracted and filled, converting thin and coarse cloth into strong and fine; at the same time giving greatly increased and improved powers of receiving colors in printing and dyeing, and also in making them more permanent.

49 MONTEITH, HENRY, & Co., *11 George Square, Glasgow*—Manufacturers.

Specimens of Turkey red yarns and cloths.

Printed handkerchiefs, garments, furnitures, scarfs, and shawls, in Turkey red.

Printed cotton handkerchiefs and shawls, in madder, indigo, and steam colours.

49A CAIRNS, J., *9 Charlotte Street, Manchester*—Manufacturer.

Fancy cotton muslins dyed Turkey red.

50 M'NAIR & BRAND, *Glasgow, and 23 Friday St., London*—Manufacturers.

Printed shawls. Long and square woollen fabrics. Indian styles. Registered designs.

51 BLACK, JAMES, & Co., *Glasgow*—Manufacturers.

Printed cambrics, muslins, mousselines-de-laines, Barèges, and other fancy cotton, woollen, and silk fabrics. The cloth is manufactured chiefly by power-loom, and by hand-loom weavers in the west of Scotland and north of Ireland.

52 GOURLIE, WM., & SON, *8 South Frederick St., Glasgow*—Designers and Printers.

Printed muslins, on plain and fancy fabrics, manufactured for the home and foreign markets. The dahlia, a patented colour. Designs registered by the exhibitors.

53 MONTEITH, JOHN, & Co., *51 Buchanan Street, Glasgow*—Manufacturers.

Printed muslins and jaconets.

Printed mixed fabrics,—silk and wool, and cotton and wool.

54 KERR & McMILLAN, *44 Friday Street, and at Glasgow*—Manufacturers.

Two printed silk pocket-handkerchiefs, exhibited for fabric and design.

55 CUSSENS & Co., *51 Bunhill Row*—Manufacturers.

Cotton velvets, dyed and embossed by the exhibitors.

56 STIRLING, WILLIAM, & SONS, *Glasgow*—Manufacturers.

Specimens of Turkey-red dyeing and printing, on cotton fabrics.

56A BRODIE, W., *Asylum for the Blind, Glasgow*—Producer.

Specimens of work wrought by the female inmates, under the direction of Miss Lamond:—

Silk purses, long and round. Sofa and toilet cushions. Polka jacket. Set of nine fruit mats; set of twelve doyleys. Bread-basket cover. Smoking caps; pair of stockings. Babies' boots and carriage boots.

A part of the Holy Scriptures (the Prophecy of Isaiah) in raised letters, for the use of the blind.

Five bushel sacks, of first and second quality. — Manufactured by the blind male inmates of the same institution, under the direction of Mr. Semple.

57 EWING, ORR, & Co., *Glasgow*—Manufacturers.

Three pieces of Turkey-red full chints furniture prints, printed by blocks, exhibited for fast and brilliant colour, and new style, with beauty of design and execution.

Three pieces of Turkey-red chints prints, printed by cylinder machine.

Two pieces of Turkey-red chints furnitures, combining fastness and brilliancy of colour with novelty of style and beauty of design and execution.

One piece of Turkey-red handkerchief, printed by discharging-press and copperplate.

One piece of Turkey-red handkerchief, printed by blocks.

Turkey red, which is represented so largely in this exhibition in the hangings, banners, &c., is a dye derived, by a tedious process, from madder. It appears to have originated in India, but the art is now carried to great perfection by many continental dyers, and by the dyers and calico-printers of this country. Peculiar circumstances, whether in the manipulation or in the material does not appear ascertained, have rendered different localities and manufacturers celebrated for the brilliancy of this dye.—R. E.]

58 WALESHAW, JOHN, & SONS, *North Bridge, Halifax*—Dyers and Producers.

Specimens of variously dyed two-fold thirties, worsted warp.

59 HITCH, M., 47 *High Street, Cowes, Isle of Wight*—Producer.

Hair, to show the effect of dye.

Wools, showing different dyes applied without fire-heat for dyeing wools and woollen yarns (for weaving cloth, carpets, rugs), and cloths when woven.

Horn, stained without the application of soda or potash, to imitate tortoiseshell, the stains not readily affected by damp or sea-air.

The marine colours, 5, 6, 7, and 8, were produced in 24 hours, and by the application of fire-heat may be produced in 15 minutes from the time of its leaving the dyer's.

60 LE LIEVRE, H., 8 *Cleveland Street, Mile End Road*—Producer.

Specimens of black-dyed silk.

61 JORDAIN, W. D., 60 *Milton Street, Cripplegate*—Producer.

Coloured and black specimens of silk dyeing.

62 CHADOT, PHILIP J., *Spatfields*—Producer.

Specimens of English fleecy and worsted yarns, and British wool, cotton and linen yarns and skein-silks, black-dyed, in various colours and shades; scarlet and blue in imitation.

The cotton and linen colours are from a new use of a new colouring matter. The colours from chicory are at present only a novelty.

The above are all from the dye-works of the producer, Spatfields, London.

63 REYNOLDS, SARAH, & SON, *Temple Street, Hackney Road*—Producers.

Specimens of skein silk dyeing.

64A MAIR, SON, & Co., *Fiskin Street, Cheapside*—Manufacturers and Printers.
Printed handels.

64 McCALLUM, *Government School of Design, Manchester*.

Panoramic history of the calico printing of Manchester, comprising specimens of the trade since its rise and during its progress to the present time, arranged in chronological order, and illustrated by views in and about Manchester.

Designs with Classes 5 and 6 on the North Wall, Avenues 28, 29, and 30.

64A BRADBURY, GREATORREX, & BEALL, *Aldermanbury*—Producers.

Specimens of wood cut printing for pocket-handkerchiefs.

65 CARTER, —, Designer.

Designs for paper-hangings.

66 HUDSON, CHARLES, *Merton, Surrey*—Designer.

Designs for printed shawls.

67 WATERSON, J. A., 22 *Ormond Street, Chorlton-on-Medlock*—Designer.

Designs for printed muslins.

68 KAY, HENRY, *Raxtenstall, Manchester*—Designer.

Designs for mousseline-de-laine and cotton muslin.

69 FLETCHER, JOHN, *Altrincham*—Designer.

Design, 11 colours, repeat of sketch, 11 inches by 8 inches.

A smaller design, 9 colours, repeat of sketch, 8 inches by 6 inches, intended for block work.

70 GAUTHORP, —, Designer.

Design for ornamental panel.

70A GREEN, HARRY, *Melbury Park, Dorchester*—Designer.

Designs for printing on calico and mousseline-de-laine.

71 HAMMERSLEY, J. A., *Principal of the School of Design, Manchester*—Designer.

Picture in oil colours, showing the principles upon which floral forms are adapted to designs for textile fabrics; exhibiting a central picture of a composition of flowers, imitated from nature, surrounded by 200 geometrical spaces, each containing a separate design, and showing the mode of applying these flowers to manufactures.

[For textile fabrics, natural flowers have been represented under conventional forms; so that, without departing from the original type, the character of design may not be pictorial. The patterns of Eastern Chintzes are but fantastic imitations of flowers; and the pure taste of ancient Greece discarded from female dress all ornament but that of a flat character: where borders of the vine or ivy-leaf, or of the honeysuckle, have been adopted, they are flat. The oriental Cashmere style, the stuffs and carpets of Persia and Turkey, the Tartan of the Scot, the Arabesques of ancient Rome and Moorish decoration, while admitting of every variety or beauty in design or colour, are examples of a flat, as opposed to a relieved, pictorial style of ornament.—R. H.K.]

72 WATERHOUSE, JONATHAN, *Manchester*—Pattern Designer.

Ornamental design for a dress skirt, applicable for printing upon fabrics.

Coloured designs, arranged for seven-inch repeat of sketch, adapted for machine printing on fabrics: Spring, represented by the snow-drop; Summer, laburnum; Autumn, nasturtium; Winter, mistletoe; Morning and Evening, poppy.

73 PERCIVAL, JOSEPH, *Manchester*—Designer.

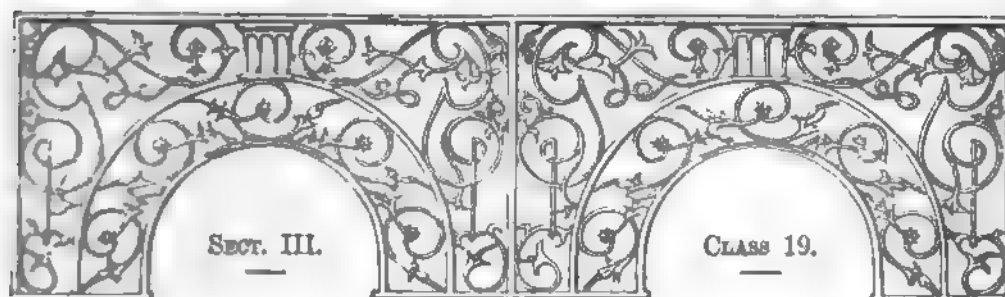
Designs for mousseline-de-laine.

74 CADMAN, —, Designer.

Designs for muslins.

- 76 WHITTAKER, JAMES, *Manchester*—Designer.
Design for muslin.
- 77 LENNON, RICHARD, *Manchester*—Designer.
Various designs for muslin.
- 79 BRIDGES, —, Designer.
Designs for printed fabrics.
- 81 ROBERTS, T., *New Street, Altrincham*—Designer.
Six five-colour designs for mousseline-de-laine; with block-work enclosed in the same frame.
- 82 JARVIES, —, *Hulme, Manchester*—Designer.
Designs for printing.
- 83 HOBBS, WILLIAM, *33 Great Jackson Street, Hulme*—Designer.
Design applicable for printed chints furniture.
- 84 BRANLEY, —, Designer.
Various designs.
- 85 REES, MARY, *School of Design, Somerset House*—Designer.
Designs in various colours.
- 86 COLLINS, F., *School of Design, Somerset House*—Designer.
Various coloured designs.
- 87 ASHWORTH, S. A., *Central Female Government School of Design*—Designer.
Various designs in colours.
- 88 MANBEDEL, FRED., *63 Bread St., City, & 34 Acton Street, Gray's Inn Road*—Designer.
Chints furniture design, practically arranged for block printing.
- 89 SMITH, JOHN, *Sandway, Altrincham, near Manchester*—Designer.
Designs for a portière, or door-screen; and for machine and block printing on silk, mousseline-de-laine, and cambric.
- 90 HUNT, J. C.—Designer.
Various designs.
- 91 HEAVISIDE, JOHN, *30 Bedford Square*—Designer.
Designs for China and papier maché.
Designs for decorative paper and paper-hangings.
Designs for cotton-prints, &c.
- 92 GLOVER, MARIA, *School of Design, Manchester*—Designer.
Designs for borders, in which natural objects are applied ornamentally; they may be used for wall papers, carpets, or porcelain.
- 93 SANDWAY, —, *Altrincham*—Designer.
Various designs.
- 94 GANN, LOUISA, *School of Design, Somerset House*—Designer.
Three coloured designs for mousseline-de-laine or calico.





TAPESTRY, CARPETS, FLOOR-CLOTHS, LACE AND EMBROIDERY, &c.

INTRODUCTION.

Some of the objects included in this Class present, from their remarkable disposition in the Building, a highly attractive and interesting appearance, suspended from the girders over the Galleries, and thus displayed to the best advantage, and under circumstances the most highly calculated to develop their peculiar beauties;—the specimens of carpets, oil-cloths, and tapestry must be considered as occupying a very prominent space in the Exhibition.

The following Sub-Classes have a place under the general Class, inclusive of these and other articles:—A. Tapestry, as Carpets of all kinds, Axminster, Brussels, Kidderminster, &c., Matting, Oil-cloth, Counterpanes, and ornamental Tapestry of different materials; B. Lace, as Pillow-lace, made wholly by hand, and Machine-made lace; C. Sewed and Tambooured Muslins; D. Embroidery by hand and machinery, and in different materials; E. Fringes, Tassels, &c.; F. Fancy and Industrial Works.

In the Building, objects in this Class are placed against the wall in the South Gallery, and arranged in cases in the South Central Gallery. Carpets and oil-cloths are suspended from the girders in the Side and Central Galleries, and in the Galleries on the East Side of the Transept. The carpets exhibited by Her Majesty the Queen are placed overhanging the corner near the Transept of the North Central Gallery; of these, one is made in the usual manner, and is intended for an apartment in Windsor Castle; the other is the combined production of one hundred and fifty ladies, and is wrought in Berlin wool-work.

The manufacture of tapestry, such as carpets and oil-cloth, and lace, is localized in peculiar districts, in a remarkable manner; Kidderminster, Wilton, Glasgow, and Halifax contain extensive factories solely engaged in the production of the various descriptions of carpets in ordinary domestic use. The application of the power-loom to the carpet manufacture is recent, and its use is extending. A great variety of combination of materials is exhibited, many of which indicate a remarkable departure from the ordinary method of manufacturing carpets and similar objects. One of these is a species of mosaic tapestry where the cut wool is fixed to a ground or foundation of caoutchouc.

The lace productions of Honiton and Buckinghamshire have long attained universal renown. These laces are chiefly wrought by hand at the homes of the persons concerned in their manufacture; but recently a combination of machine-made lace and pillow-made ornament has been introduced under the title of "appliquée lace." The machine lace of Nottingham has scarcely an inferior degree of celebrity: in that town factories are in almost constant work producing, by the aid of a large number of the most delicate and costly automatic engines, the finer fabric. In a preceding Class these machines are described, and are exhibited in motion in another part of the Building. In the South Central Gallery are some beautiful specimens of the intricate and elegant ornamentation capable of being imparted by these machines. Of the lace made by hand various interesting specimens are shown which represent much patient effort in the instruction of the poor in this art, and considerable taste of design.

Wreaths which have occupied the unwearied producers during the leisure hours of some years are exhibited in the Class, and display a large amount of industrial perseverance.—B. E.

1. **EMERY, DARTMOUTH, 81 Oxford Street—Manufacturer.**

Specimen of Honiton lace, representing the arms of Her Majesty the Queen and H.R.H. Prince Albert, encircled by wreaths of palm and olive branches, around which are entwined thistle, and shamrock, and the motto "Dieu et mon droit." Designed by T. Emery, and manufactured by John Tucker.

Honiton guspure mantle. Bridal scarf and rich flounce of Honiton lace, the pattern composed of natural flowers.

Honiton shawl. Honiton guspure flounce. Flounce of point d'Angleterre, worked in imitation of Brussels lace.

Honiton lace. Lace-kitchen, coiffure, infant's cap and collar of Honiton lace.

Specimen of a specimen design, for making ladies' lace-kitchen.

2. **FISHER & ROBINSON, 12 Watling Street—Manufacturers.**

Various samples of black silk lace and piece goods, scarfs, lappets, half shawls, laces, footings, loop nets, white blonde machine-run curtains, white tamboour flower-rings, black needlework, quiltings, and nets.

3. **GRUBB, COPELAND, MOORE, & CO, 5 Rue Churchyard—Manufacturers.**

Honiton work point lace, guspure berthes, lappets, &c. Embroidered muslin sleeves, collars, chemisettes, muslin trimmings, infants' caps, and child's frocks.

Buckinghamshire lace. Lace pillow, with lace in progress, employing upwards of 600 bobbins, each having a separate thread.

Specimen of lace net for mosquito curtains, manu-

tured of cotton thread; and for the application of Brussels and Honiton sprigs, manufactured from cotton thread.

Needlework imitation Brussels point lace, viz.: a dress and train, a scarf, berthe, and lappet.

Victoria prima point lace.

[Few departments of ornamental industry have experienced so many vicissitudes, in consequence of the introduction of mechanical power, as that of the lace manufacture. The lace of Honiton, in Devon, has long rivalled the most beautiful and costly productions of the Continent. At one period during the last war, veils of Honiton lace sold for very large sums, as much as 100 guineas having been paid for fine specimens. Honiton lace is entirely made on the pillow by hand labour.]

4 LAMBERT & BURY, *Limerick, Ireland*—Designers and Manufacturers.

Specimens of lace; shaded lace flounce; shawl; and worked scarf, in imitation of Valenciennes; shaded tunic lace dress.

5 HOWELL, JAMES, & Co., 5, 7, & 9 *Regent Street*—Producers.

Honiton lace, square in guipure.

Honiton guipure lace mantle and berthe.

British point lace berthe, manufactured at Islington, being an imitation of the Brussels point à l'aiguille.

White glacé silk dress, embroidered with bouquets of flowers, and silk apron to correspond, as specimens of English needlework.

Brocaded silk in various colours, forty inches wide, manufactured in Spitalfields.

6 WEEDON, FRANCIS, *Goldsmith Street, City*—Manufacturer.

British point lace square, and specimens of founcing of the same fabric.

8 NERINCK, SISTERS, 10 *New Cavendish Street*—Manufacturers.

Specimens of lace.

10 LAUGHER & COSENS, 97 *Oxford Street*—Proprietors.

Guipure lace half shawl, manufactured at Honiton.

11 WEEDON, FREDERICK PRICE, 29 *Lower Street*—Islington—Designer and Manufacturer.

A lace berthe of the description of work designated British point.

12 PULLAN, MATILDA, 126 *Albany Street, Regent's Park*—Designer, Inventor, and Manufacturer.

Modern point lace, worked with a common sewing needle.

13 TAWELL, SAMUEL, 16 *Gresham Street West*—Manufacturer.

Tamboured lace scarf, imitation of Honiton, manufactured in London.

14 GOULD, J. & F., 89 *Watling Street*—Manufacturers.

Registered Victoria lace work, in ladies' collars, cuffs, capes, sleeves, caps, and trimming for ladies' wearing apparel. Produced entirely by hand.

15 UBLING, GEORGE FREDERICK, 224 *Regent Street*—Manufacturer.

White lace scarf, in imitation of Brussels point, composed of British plants and flowers in needlework; the date, 1851, encircled with the rose, thistle, and shamrock; the straight lines of the border embroidered in gold, and worked upon a fine clear patent net.

16 GARD, WILLIAM SNOWDON, 268 *Regent Street*—Designer and Manufacturer.

British point lace scarf.

British guipure lace berthe, a new manufacture.

17 RIECO DE LA BRANCHARDIERE, ELEONORE, 106 *New Bond Street*—Inventor and Manufacturer.

Crochet work, lace berthe; design, rose, shamrock, and thistle; the same, with rose, carnation, &c. Robe, medallions. Altar cloth. Couvrette, flowers. Collars, various.

Flounce, imitation of Spanish point lace. Initial letters in silk, flowers. Vase, flowers, butterfly and snake. Cornucopias. Baby's cap.

Design, in silk and gold, for Prayer-book covers. Pair of hand screens, appliqué. Specimens of point, and of point lace.

The value of this branch of needlework lace is its durability, and the facility with which it can be acquired and executed. The designs are registered.

18 CLARKE, JANE, 170 *Regent Street*—Manufacturer.

Royal Irish snow point lappet.

Head dress of Irish rose point.

Scarf of Belfast loop point.

Chalice cover of Irish point.

An Irish lace flounce, with point roses.

Hibernian point collar.

A pocket handkerchief of Irish lace.

19 BALL, DUNNICLIFFE, & Co., *Nottingham*—Manufacturers.

Patent elastic velvet, plain and mixed pile; silk elastic taffeta, silk elastic fleeced taffeta, elastic fabrics, and Simla shawls; all from warp-lace machine. Designed by John Wilkins.

Lace shawls. Simla nets, falls, quillings, and fancy breadths, from bobbin-net machine.

20 BIRKIN, RICHARD, *Nottingham*—Manufacturer.

Black silk lace edgings, trimming laces, lappets, flounces, falls, fancy piece-nets, &c.

White silk blondes.

Woven thread laces and edgings.

White Valenciennes edgings.

An exact imitation of real Valenciennes-insertion, black and coloured.

Mohair laces and flounces.

Guipure à dentelle.

All made and ornamented by machinery, at one operation.

21 ADAMS, SAM., & SONS, *Nottingham*—Manufacturers.

Laces and edgings, made entirely by machinery.

25 HEYMANN & ALEXANDER, *Nottingham*—Proprietors.

Machine-wrought cotton lace curtains, with raised pattern; counterpanes; "antimacassars."

Cotton extra twist Brussels net, made of fine thread, various kinds, used for Brussels sprig.

Zephyr net, used for embroidery.

Mechlin net, the mesh being the same as that made by hand, and cotton Brussels quillings, various.

Black silk Jacquard lace, made and finished entirely in the machine.

Silk Jacquard shawl, made entirely in the machine.

27 WHITLOCK & BILLIARD, *Mary Gate, Nottingham*—Manufacturers.

Specimens of machine-wrought cotton Mechlin laces, needle embroidered. The groundwork made from No. 520 yarn, spun and doubled.

28 HERBERT, THOMAS, & Co., *Nottingham*—Manufacturers.

Lace of various kinds from the warp machine.

Crochet lace from the warp and twist machine.

Blond edgings, from the twist machine.

29 Mallet & Barton, Nottingham, and New Basford—Manufacturers.

Specimens of silk lace, machine-wrought; silk lace, part machine and part needle-wrought; silk lace fringes, machine-wrought; cotton plat, or imitation Valenciennes; cotton laces, part machine and part hand-wrought; and fancy lace trimmings, machine-wrought.

30 HOLLINS, SAMUEL, Nottingham—Manufacturer.

Lace goods:—Machine-made cotton Brussels nets and laces, figured by the needle.
Various hosiery goods.

31 MOORE, SAMUEL WESTON, Hookley Mill, Nottingham—Manufacturer.

Specimens of lace and net made from No. 520 lace thread, and of plain net, made from No. 630 thread.

The application of machinery to the production of lace is very remarkable and interesting, as probably few introductions of machinery to textile manufactures produced so sudden an alteration on the expiration of the patent protecting it, in the ordinary course of fabrication. The bobbin-net machine was invented in 1809; it came into general use in 1823, and an immense stimulus was communicated to the manufacture. The powers of production of this machine are to hand labour nearly as 5 to 1, and the lace produced by it has, in plain articles, wholly superseded that made by hand.—R. E.]

32 RECHLES & HICKLING, Nottingham—Manufacturers.

Embroidered white lace shrouses, falls, scarfs, shawls, berthes, &c.

Black lace shrouses of all widths, falls, scarfs, shawls, berthes, lappets, coiffures, &c., partly embroidered by machinery (on the Jacquard principle), and partly by hand.

33 VICKERS, WILLIAM, Nottingham—Manufacturer.

Specimens of black silk lace shawls, scarfs, mantles, &c., the produce of the pusher bobbin-net machine; the machine introduced by subsequent embroidery.

34 GREASLEY & HOPCROFT, Nottingham—Manufacturers.

Lace articles. Jacquard pusher silk shawl. Figured needlework shawls, falls, &c.

41 STEIGMANN, HENRY, & Co., Nottingham—Inventors and Manufacturers.

Figured lace-curtains, made entirely on the lace machine by Jacquard application.

45 FORREST & SONS, 101 Grafton Street, Dublin, and Abbey Court Factory, Limerick—Manufacturers.

Laces. Royal Irish guipure, Irish appliqué; Limerick; silk and black appliqué.

Lace dresses, shrouses, squares, scarfs, mantles, shawl veils, berthes, handkerchiefs, sleeves, baby's caps, mittens, lappets, lace collars, &c.

47 VINCE, ALEXANDER MARY JOSEPH, 21 Greenville Street, Hutton Garden—Manufacturer.

Artificial flowers in wool. Basket in porcelain, containing a great variety of woollen flowers. Cane basket, containing a piece of green turf with flowers. Rustic basket of flowers.

Large piece of the "green turf." Application of the "green turf," or *parterre*, to a small carpet or rug. Metal flower-pots, filled with woollen flowers, with canes.

48 MOORE, Mrs., Great Castle Street.

12 embroidered lace smoking-cap.

48 JANCOWSKI, W., York—Designer and Manufacturer.

State chair, of ruby coloured silk velvet, embroidered with gold, silver, and jewels, containing, on the back, the royal arms, supporters, scroll and motto, with wreath of flowers, in which the rose leaves are raised and detached from the surface; and on the seat the coronet, feathers, scroll, and motto of the Prince of Wales, surrounded by the rose, thistle, and shamrock, exhibiting ten different styles of embroidery: the frame of the chair is of carved wood, gilt.

Banner screen, containing the arms of the city of York, embroidered in gold, silver, and silk, upon pale and blue satin, and mounted on a carved gilt stand.

Picture, 18 inches by 12, copied from a German painting, embroidered in tent stitch with silk, on mosaic canvas.

49 DAVIES, Mrs. R. E., 29 Harewood Square, Regent's Park—Designer and Executor.

Set of chess-men, draught-men, dice, and board in needlework, the men being in characteristic costume; composed of silks, &c. The pawns are representations of Her Majesty's Body Guard of Gentlemen-at-Arms, in their full and undress uniform. Designed and executed by the exhibitor.

50 ROSE, ELIZABETH, Pauler's Pury, near Worcester—Designer and Manufacturer.

Full-sized black lace dress. Shawl. Scarf shawl. Veil. Berthe, made of black pillow lace.

51 MEE, CORNELIA, Bath—Inventor, Designer, and Manufacturer.

Banner screen. The banner composed of the flags of all nations, embroidered in fine silks, held by a figure of Peace, modelled from Canova's statue. The figure leans on a pedestal, and with the right hand points to the epoch of the Exhibition with an olive branch.

Couch, mounted in white and gold, embroidered in rare natural flowers.

Occasional chairs, embroidered on velvet, and mounted with white and gold.

Curtains, embroidered on white Cachemire and stripes of crimson Genoa velvet, in uncommon and beautiful flowers from nature.

Cushions, embroidered in shells, from nature.

These specimens are exhibited to show the application of needlework to the decoration of furniture. The needlework of most of the articles is done from flowers, minutely copied from Paxton's Magazine of Botany.

53 O'DONNELL, MARY, 69 London Street, Reading, and 18 Sussex Place, Kensington—Designer and Manufacturer.

Specimens of a new and improved method of appliqué lace-work, original design. Section of the same.

Blotting-book, ornamented with leather work on an ultramarine ground, intertwining the emblems of Great Britain, surmounted by the Prince of Wales's plume and motto.

Articles of ornament in gutta percha, leather, and fancy wood.

Hand-screens in gilt frames. New application of stamped gutta percha. Preserved real flowers and embroidery.

Cheval screen, a peacock embroidered in wool.

Cedar box, ornamented with carving.

Ultramarine box, ornamented with leather work.

Conversation hand-screens. Educational hand-screens. Counterpane, of new pattern.

55 TREADWIN, C. E., 27 Cathedral Yard, Exeter—Manufacturer.

Devonshire, or Honiton, point lace shrouse, berthe, and lappet; designs procured from the Government School of Design, Somerset House, London.

56 ONION, ELIZABETH, 38 Broad Street, Birmingham—
Manufacturer.

Velvet drapery valance, worked with gold silk braid, on dark crimson velvet ground, ornamented with tassels, drops, and fringe.—New design.

Crimson valance fringe, in silk and worsted, ornamented with hangers. New drapery rope, rosettes and festoons, in crimson, gold, and white silk. New diamond valance fringe, in silk, ornamented with gimp head, hangers, rosettes, gimp ornaments, &c. Registered bell lever ornaments.

Curtain holder, with one tassel and two pendants, in crimson, white, and gold.

Ornaments for valances, in a variety of colours and designs. New patterns of coach and railway carriage lace.

Patterns of glass string, guard string, and other carriage trimmings.

57 BROWN, SHARPE, & Co., Paisley, and 18 Watling
Street, London—Manufacturers.

Embroidered and tamboured book muslin dresses.

Embroidered scallop and insertion trimmings, flounces, collars, habit-shirts, chemisettes, sleeves, pincushion covers, handkerchiefs, and night-caps.

58 BROWN, S. R. & T., Glasgow—Manufacturers.

Specimens of muslins embroidered by the female peasantry of Scotland and the North and West of Ireland, consisting of ladies' and children's dresses, collars, caps, chemisettes, habit shirts, trimmings, &c.

59 PARK & THOMSON, Glasgow—Manufacturers.

Children's sewed robes; ladies' collars, sleeves, handkerchiefs, fancy habits, chemisettes.

Cambric and book flouncings; sewed trimmings.

60 MACARTHUR, D., & Co., Glasgow—Manufacturers.

Hamilton lace goods. White dress; black dresses; coloured dress; black cloak or mantilla; white cape; black cape; veils; pairs of sleeves.

61 CONNAUGHT SCHOOLS, Glasgow—Producers.

Specimens of sewed muslin.

62 ROBERTSON, JOHN, & SONS, Glasgow—
Manufacturers.

Sewed book-muslin and cambric squares for fancy covers for the drawing-room table.

Specimens of embroidery.

Samples of collars, habit-shirts, chemisettes, &c.

63 M'FARLANE & PORTEUS, 33 Queen Street, Glasgow—
Manufacturers.

Specimens of embroidered black and white muslin collars, chemisettes, habit-shirts, and sleeves for mourning.

Black silk lace veils, black and white lace cloaks, and black lace flounced embroidered robe skirt, exhibited for superiority of work.

64 BROWN, H., 100 & 104 Virginia Place, Glasgow—
Manufacturer.

Sewed book muslin collars; imitation cambric or jaconet collars; frilled chemisettes, on book muslin; fancy habits; three pair of sleeves or cuffs; four cambric handkerchiefs, embroidered on French lawn; embroidered book muslin dresses; patterns of book and cambric scallop, and insertion trimmings and flounces.

65 MACQUARIE, FISHER, & Co., Glasgow—
Manufacturers.

Black silk lace shawl, veil, and apron.

White cotton and linen lace dress.

White silk and gold under sleeves.

Coloured silk and gold apron and parasol cover.

66 MACDONALD, D. & J., & Co., Glasgow—
Manufacturers.

Embroidery on book muslin. Ladies' collars, chemisettes; habits, caps, &c. Child's caps and collars. Embroidery on jaconet and cambric; ladies' collars, chemisettes, sleeves, caps, &c.

Embroidered French cambric: ladies' handkerchiefs, child's caps. Embroidered baby linen: infants' robes, bodies, and caps; child's frocks, &c. Embroidered trimmings; jaconet and book edgings and insertions; cambric, book, and mull flounces.

67 SIMPSON, MILES, 5 Aldermanbury Postern, 4
Milk Street, Manchester, Leek, and Derby—
Manufacturer.

Specimens of the leading classes of raw silks, from France, Italy, China, Bengal, and Turkey, selected by Messrs. Durant & Co.

Sewing, netting silk, and twist, intended to show the varieties of quality, their richness and beauty of colour.

Sewing, netting silk and twist.

Raven and jet sewings, in weight and form as sold in the market, of four qualities.

Crochet and mohair silk, exhibited for quality and price.

Shoe mercery, consisting of silk and union galloons, doubles, braids, and round silk laces, yellow and black borders, &c. Specimens of union cord.

[In 1849 the enormous quantity of 6,269,179 lbs. of silk in its several conditions of raw, waste, and thrown, was imported into this country. The manufacture employs upwards of 33,000 individuals, and is carried on in nearly 300 silk factories. The sum annually expended on silk goods in England is taken at considerably upwards of fifteen millions annually.—R. E.]

68 FOOT & SONS, 38 Spital Square—Manufacturers.

Various fringes, elastic ribbon trimming, &c.

Rich dress or mantle fringe, with figured velvet, terry, and brocade lace heading, a combination of velvet and brocading, with the various branches of art used in trimming manufacture.

69 ARTHUR, ANN, 5 Mortimer Street, Cavendish Square—
Manufacturer.

Silk, worsted, and cotton braids for figuring. Silk, worsted, and cotton fancy netted buttons. Silk fringes for ladies' mantles; gimps for children's dresses; girdles and tassels. Silk and cotton olivets. Silk military braids and frogs.

70 GABRIEL, J. W., 135 Regent Street—Manufacturer.

Specimens of English embroidery, on silk and woollen goods for waistcoats.

71 DANBY, CHARLES & THOMAS, 14 Coventry Street,
and 43 New Bond Street—Manufacturers.

Crochet silk gimp robing, resembling the rose leaves and flowers, with buds, and made in the natural colours.

Various specimens of a Brandenburg crochet silk gimp trimming, ladies' dresses; of girdles, in various colours and styles; and of silk fringes, for mantles, dresses, &c., of various new designs.

Specimen of a new style of head-dress, formed of crochet, silk gimp rings, and tassels of new design, and of various articles for ladies' dresses.

72 BRADBEE, G. W., 115 Newgate Street—
Manufacturer.

Needlework. Tapestry worked by Mrs. James Marsh, Lordship Road, Stoke Newington. Landseer's Horses at the Fountain. The Hawking Party. Anne Boleyn and Cardinal Wolsey. The Moral Lesson. The Monk. The Hawk.

A group of flowers, mounted as table or screen, the stem ornamented with flowers, &c., made of leather.

A bird mounted as above, the stem covered with tram silk by hand and wheel.

Lev fringes, for sacred edifices and rooms.

Patterns, gimps, tassels, dress trimmings, &c.

74 EVANS, R., & Co., 24 Watling Street—Manufacturers.

Cornice, bullion, and silk ornament fringe. Bell-pulls. Curtain-holders. Silk cords, gimps, tassels, and rosettes. Articles used for trimming ladies' and children's dresses and mantles.

75 BUNGE, ROBERT, 42 Bartholomew Close—Manufacturer.

Specimen of deep bullion fringe, wove to shape, trimmed, and ornamented for window, with cornice gimp attached. Valance for window.

Specimens of ornamental hangers, drops, pendants, fringes, ropes, gimps, cords, and tassels for drapery, &c. Beattie medallions. Ornamental watch hooks for beds, &c.

76 BARRETT & CONKEY, 70 Little Britain—Manufacturers.

Bars of silver-gilt and silver wire. Wire-drawing plates with holes. Hanks and bobbins of gold and silver fine wire. Gold plates, or flattened wire, used in headings of Lancashire cloths, Scotch muslins, &c. Gold and silver plates, used in spinning gold and silver threads.

Shades of Italian, Bengal, and China raw and thrown silks. The same, dyed to colours used in gold and silver threads.

An assortment of gold and silver threads, used in the manufacture of laces, embroidery, and epaulettes; also in headings of cloths and muslins; of gold and silver bullions, used for military and naval sword knots, epaulettes, tassels, &c.; of gold and silver purls, plates, and quingles, used in embroidery; and of gold and silver chords, braids, and gimps, used for agullettes, epaulette ornaments, &c.

Gold and silver laces.

Fine specimen of embroidery in gold threads, purls, plates, and spangles. Designed and worked by Rebecca Abraham, embroiderer to the Queen, 5 Lisle Street, Leicester Square.

77 IRISH WORK SOCIETY, 233 Regent Street—Producers.

Shawl, caps, and other specimens of Currah lace, imitation of Brussels. Specimen of black appliqué lace. Berthe, trimming, lappets, caps, and other specimens of guipure crochet. Trimming and collars of real guipure, made from old models.

Laguna and Tuscan plait, made from Irish grasses, as a hat of the same, and specimens of straw plait.

Specimens of crochet from Donegal and other localities, applicable for dress or furniture.

Takenets or poplins, from Mrs. Moran, Dublin.

Black and white pillow lace, made under the direction of Lady Louisa Tighe.

Mahone lace, made at the Carmelite convent, Waterford.

Free knitting, from various localities.

Black silk mittens, knitted and netted.

Child's frock, braid imitation of guipure.

Child's frock, crochet guipure.

Franchise and trimming, imitation guipure.

Specimens of embroidery, worked *au Maroc*, from Middleton convent, and Mrs. O'Donovan, of Clonakilty.

Specimens of embroidery from the county Kerry, Mrs. Neper, of Lougherow, and other localities.

Specimens of plain work from Ballymena and the county Kerry.

Specimens of woven cotton hosiery, manufactured by Messrs. Smyth, of Balbriggan, and 37 Lower Abbey Street, Dublin.

Mats of Irish wool, from Carbury, county Kildare.

Specimens of feather flowers, from the Youghal convent.

Hair chains and bracelets.

Specimens of trimmings in broderie Anglaise.

Flowers and feathers from the convent of Youghal, &c.

78 CLARK, J., 56 High Street, Bradford—Producer.

Table-cloth embroidered with thread on crimson sarsenet.

79 LEES, ROBERT, & Co., 36 King Street, Cheapside, —Manufacturers.

Printed mohair tapestry. Plain, embossed, and shaded Utrecht mohair velvet. Plain and brocaded mohair velvets. Printed Chinese velvets of mohair. Livery and other mohair and worsted plushes.

80 SURR, JOSEPH, & SON, 12 King Street, Cheapside—Manufacturers.

Silk twist of different colours, in balls and on reels, and in hanks and skeins. Manufactured at Leek, in Staffordshire.

81 HART, GEORGE, 7 Market Street, May Fair—Inventor and Manufacturer.

Registered boxes, candlesticks, ornaments, hand-screens, and designs for table tops. The novelty consists in the application of muslin and cotton for this purpose. The materials of British manufacture.

82 SMITH, ANDERSON, & Co., 45 Cheapside, and 19 South Hanover Street, Glasgow—Producers.

Infant's cap, embroidered on French cambric; infant's robe, embroidered on fine nainsook; infant's bassinette cover, embroidered on fine nainsook.

83 LANBERT, BROWN, & PATRICK, 236 Regent Street—Manufacturers.

Army and navy epaulettes, and uniform laces. Court-dress waistcoats, richly embroidered. Masonic regalia. Church decorations, embroidered in gold. Cross, with crown of thorns, I.H.S., and glory. Fac-simile of the Bible used by King Charles I., when upon the scaffold on the day of his martyrdom; the cover embroidered in gold with all its enrichments, copied from Smith's "Collectanea Antiqua."

84 JACKSON, C., 10 Curzon Street, Mayfair—Producer.

An occasional table, mounted with appliqué embroidery.

85 HARRISON, T., 21 Brownlow Street, Bedford Row, and 8 Bolton Place, Brompton—Designer and Manufacturer.

Altar cloth and cushions, of rich crimson Genoa velvet, embroidered in gold, in the style of the 15th century.

86 STIRLING, MARY ANNE, 29 John Street, Bedford Row—Designer and Manufacturer.

A fire-screen worked in chenille, &c., forming an ornamental group of flowers.

88 PURCELL, FRANCES, 3 New Burlington Street—Producer.

A needle-worked table-cover.

90 STURMY, MARIA, 8 Wellington Street, London Bridge—Designer.

Table-cover, a novel method of embroidery, worked with the needle, and without pattern of any sort.

- 94 BARNARD, EVEREIDA, *Little Bardfield Rectory, near Dunmow*—Manufacturer.

Two figures in Berlin wool work, intended for the purpose of keeping doors open.

- 95 BARNES, R. Y., *City Road*—Manufacturer.

Specimens of decorative floor cloth.

- 96 BATTERS, MARTHA, *9 Rose-hill Terrace, Brighton*—Designer.

Picture in tapestry, representing (in medallion style) Louis XVIII. and George III.

- 97 BAYNES, RACHEL AGNES, *Cheshunt, Herts, near Waltham Cross*—Inventor.

Knitting designs:—In the centre, the Queen Prince Albert, the Royal Family, and the Duke of Wellington; around the circle "God save the Queen;" with other designs.

- 100 BENBOW, MRS., *11 Hanover Place, Regent's Park*—Producer.

Three specimens of tapestry embroidery, after the ancient Saxon style; designs scriptural.

- 103 BLACKBURN, ANN MARIA, *Beaumont Hill, Lincoln*—Manufacturer.

North-west view of Lincoln Cathedral, worked upon white silk, with the rovings of black lutestring, and manufacturer's silk.

The frame is made of old oak, taken from the Cathedral.

- 106 BOTTOM, JAMES, *65 Brook Street, Derby*—Designer and Manufacturer.

A hearth-rug, with the border and ends formed of upwards of 20,000 shreds of cloth, and the centre of lamb's wool.

- 108 BRIDGES, W., *Ensham, near Oxford*—Producer.

Tapestry wool-work, "The Last Supper," after Leonardo da Vinci, containing five hundred thousand stitches.

- 110 BRINTON, HENRY, & SONS, *Kidderminster*—Manufacturers.

Carpets of various kinds:—Patent velvet tapestry, scroll and flowers; white ground, flowers and leaves; cut pile, or super-Wilton, group of flowers and foliage in self-colours; dark ground, scroll and foliage; white ground, chintz, all registered designs. Patent Axminster velvet rugs.

- 111 ROGERS, —, *Wilton, Wilts*—Producer.

Specimen of embroidery—"Esther and Mordecai."

- 112 WILSON, CHARLOTTE, *Guildhall, Broad Sanctuary, Westminster*—Designer.

Netted quilt or coverlid for summer use.

- 113 BROOKS, E., *2 Chester Place, Kennington*—Manufacturer.

Specimen of embroidery, descriptive of English history, exhibiting, in the centre, the royal arms; at the top, Her Majesty's initials and crown; on the right, those of H.R.H. Prince Albert; and on the left, the badge and initials of H.R.H. the Prince of Wales. At the foot, the ancient harp of Ireland. The pomegranate refers to Catherine of Arragon. The trunk of a tree torn up by the roots was the badge of Edward III. and his son Edward the Black Prince, and alludes to his name, Edward of Woodstock. The portucullis and fleur-de-lis were badges of the Tudors. The rose on the sun a favorite badge of the Plantagenets. The

open and empty pea-shell the badge of Richard II. The feathers crossed the badge of Henry VI. The dragon was the celebrated ensign of Cadwallader, last king of the ancient Britons, and now the badge of Wales. At the bottom the white horse of Saxony, the most ancient ensign of the House of Brunswick.

- 114 BROWN, M'LAREN, & Co., *Kilmarnock, Scotland*—Manufacturers.

Velvet-pile carpeting; imperial three-ply carpeting; Kidderminster superfine carpeting.

- 115 BRIGHT, J., & Co., *22 New Broad Street, Manchester, and 20 Skinner Street*—Manufacturers.

Patent velvet-pile and Brussels carpets and tapestries for curtains, portières, coverings for furniture, &c., woven at Rochdale, in Mr. R. W. Sievier's patent power loom, which raises the terry without the wire; the terry is cut, and the pile raised by a patent application whilst the loom is working; and the goods are printed at one operation in all the colours at Crag Works, near Macclesfield, by patent machinery, invented by Mr. Joseph Burch.

- 117 BURTON, M., *Libberton Bank, Edinburgh*—Proprietor.

A shawl, a table-cover, a rug, and two handkerchiefs; knitted on wires by an aged person. The pattern is original.

Picture frame, in imitation of old carved oak, composed of leather and putty. The design of the pattern taken from old carved work.

- 118 BURTON, MATILDA SARAH, *Aspringe, near Faversham, Kent*—Manufacturer.

"Italian girl," of Berlin wool; in fancy needlework.

- 119 CALEY, J. W. & F. G., *Windsor*—Designers.

Diaphane, transparent silk for blinds, with design: Star of the Order of the Garter, &c.; manufactured for the use of the Queen at Windsor Castle.

Diaphane, with design: the Rose, Thistle, and Shamrock.

- 122 CARDWELL, C. & T., *Northampton*—Manufacturers.

Pillow-lace—trimming for caps, collars, &c.

- 123 KIGHTLEY, J. T., *Northampton*—Manufacturer.

Pillow-lace for trimmings of caps, collars, &c.

- 125 CAULFIELD, W. B., *54 Coal Harbour, Blackwall*—Importer.

Specimen of knitted lace-work, intended for a baby's bassinet cover.

[The poor children at the school of Ballycastle Quay, north of Ireland, where this specimen was produced, have been for the last few years chiefly occupied in this species of hand manufacture.]

- 126 CHAMBERS, ELIZABETH REBECCA, *Wilton Square, Dublin*—Designer.

"A contribution carpet," worked for the benefit of the "Irish Society for Promoting the Scriptural Education of the Native Irish."

- 128 CHAPMAN, ELIZABETH ANNIE, *Great Bowden, Market Harborough*—Producer.

Tapestry copied from a painting by Leonardo da Vinci: Subject, "The Last Supper."

Exhibited for workmanship, which is intended to give the impression of a painting, even when closely viewed.

- 129 CLARKE, ELIZA, *Hackford, by Reepham, Norwich*—
Producer.

Collar, in point-stitch, with crochet edge, resembling Marguerite guipure lace; collar, crochet and needle-work, imitating Brussels point-lace; collar, wholly of crochet, similar to ivory guipure lace.

- 130 CLARKE, ESTHER, 18A *Margaret Street, Cavendish Square*—Manufacturer and Designer.

Flounce of Honiton lace, five yards long, in the manufacture of which forty women were employed during eight months.

- 132 COLE, T., & SON, 18 *Newgate Street*—
Proprietors.

Specimens of Brussels, Venetian, and Kidderminster carpeting.

- 133 COLLINS & ROSE, *Kidderminster*—Manufacturers.
Specimens of carpets.

- 134 CONSTABLE, HANNAH, *Clonmel, Ireland*—Designer.
Infant's crochet dress, made of white thread.

- 135 COOK, WILLIAM, *Causeway, Chippenhams*—
Designer and Manufacturer.

Cloth table-cover, 7 feet square, made with about thirty thousand pieces of broad cloth.

- 136 COPELAND, FANNY, 15, *Great Charlotte Street, Liverpool*—Inventor.
Sofa pillow, crocheted in imitation of tapestry.

- 138 JONES, L. V., 33 *King William Street, London Bridge*—Producer.

An embroidered map of the United Kingdom, showing the chief towns, railways, mountains, lakes, &c. Framed in English pollard oak. Size, 3 feet by 3 feet 6 inches. Executed by a girl fourteen years of age.

- 139 COVENEY, Mrs., *Munster, near Queensborough*.
Carpet of thirty squares, worked in Berlin wool.

- 140 CRICK, ELLEN, *Soham, Cambridgeshire*—Designer
and Maker.

A veil worked by the needle, exhibited to show that lace may be produced by the needle, equal to the Honiton lace, and in the hope that it may be the means of giving employment to many poor needlewomen.

- 141 CROSS, MARY, *Paul Street, Bristol*—Designer.
Crochet counterpane.

- 142 CROSSLEY, JOHN, & SONS, *Halifax*—Manufacturers.

Large pattern of mosaic tapestry for the walls of drawing-rooms, with portière.

Patent mosaic tapestry for the walls of dining-rooms; for carpet and table-covers; and for covers for sofas and chairs.

Patent mosaic rugs: subjects,—The British Lion, with appropriate motto; the Tiger; and landscape, and other designs.

Patent velvet carpet, with border and corners.

Twelve different designs in patent velvet carpets.

Pattern in patent tapestry carpet.

Patterns in Kidderminster and Dutch carpets; and of stair-carpet of different qualities.

- 144 CUNLIFFE, SARAH ANN, *Saffron Walden*—
Inventor.

Infant's knitted robe, consisting of 1,464,859 stitches, and 6,300 yards of cotton.

- 145 DANIEL & COSSINS, 55 *Herbert Street, New North Road*—Designers and Embroiderers.

Black satin embroidered waistcoat; the design represents Plenty, Strength, and Health, entwined with the national emblems, worked with silk in natural colours.

- 146 CONERING, Mrs. IDA VON—Designer.

Newly-invented knitting, the embroidery being seen only on one side.

- 147 HARDY, F. C., 9 *Mount Street Crescent, Dublin*—
Producer.

Specimens of knitting from Hackestown, County Carlow, Ireland.

- 148 DAVIDSON, WILLIAM, Lieutenant Bombay Artillery, *Haddington*—Importer.

Embroidery from Hyderabad; adapted for table-cloths, shawls, cushions, &c.

- 149 DAWSON, DEBORAH, *Newtownbarry, Ireland*—
Proprietor.

Cuffs, hand-spun and knitted from the wool of French poodle dogs.

- 150 DEWAR, SON & SONS, *King's Arms Buildings, Wood Street*—Proprietors.

Table covers, of elaborate design, the first mixed fabric of the kind made in Spitalfields. Designed and executed by Webb & Son. The number of cards used in the production are 3,000, the number of cards used in the Jacquard machine 40,000. Chints printed woollen table covers, and embossed.

- 152 DITL, BETTY, 23 *Charlotte St., Portland Pl.*—Artist.

Picture in embroidery—"Tasso's return"—in imitation of an engraving.

The back of an arm-chair, embroidery in silk and gold, designed on velvet, in the antique style.

Large fire-screen, embroidery in silk, chenille, and gold, in the modern style.

- 155 DOVE, CHRISTOPHER WESLEY, & Co., *Leeds*—
Manufacturers.

Velvet-pile Brussels, Kidderminster, and Three-ply carpets; with registered designs.

- 156 DOWBIGGIN & Co., 23 *Mount Street, Grosvenor Square*—Producers.

Carpet made at the patent Axminster carpet manufactory, Glasgow, for Her Majesty, designed by L. Gruner, Esq.

[The production of the peculiar description of carpets, known as "Axminster," form the principal manufacture of that town. It appears to have been commenced in imitation of the style of Turkey carpets, but a variety of patterns have been produced. The same kind of carpets are, however, produced in other places. The thick and soft pile of these carpets distinguishes them from others. In the present example, a peculiar modification of the ordinary process of manufacture has been introduced, by which the worsted is thrown to the surface, and does not appear on the other side at all.—R. E.]

- 157 DOWNING, G. & J. H., *King's Road, Chelsea*—
Manufacturers.

Specimens of floor-cloth.

- 158 SMITH, MARIA L., 24 *Basing Lane*—Designer.

A design for a lace curtain.

- 159 ELLIS, SOPHIE A., *Kildemoe Rectory, Ardee, Louth, Ireland*—Designer.

Tattooing or frivolité, for ladies' wear. Berthe, pair of lappets, habit shirt, baby's cap, pair of sleeves, and collars.

- 160 EUSTACE, RICHARD & JAMES, 10 *Weaver's Square, Dublin*—Manufacturers.

Turkey rug, exhibited as a specimen of Turkey carpet making, woven on woollen warp, the warp running through from end to end, without cut or joining, and being looped at both ends. Tufted hearth rugs, girth, roller, and suspender web. Specimens of linen mill band.

- 161 EVANS, S. A., 18 *Charles Street, Middlesex Hospital*—Designer and Manufacturer.

The "Death of Douglas," after C. Landseer, in embroidery.

- 162 EVENDEN, ELIZA ANNE, 31 *High Street, Margate*—Manufacturer.

Berlin wool work: design, Mary Queen of Scots mourning over the dying Douglas, at the battle of Langside.

- 164 FLOWER, ANN, 25 *Duke Street, Grosvenor Square*—Designer and Manufacturer.

Hearth rug, representing the star and garter, surmounted by the British crown.

Picture, "Flags of all Nations," worked in cross-stitch in silk, chenille, beads, and wool.

- 165 FAUDEL & PHILLIPS, 38, 39, & 40 *Newgate Street*—Designers and Manufacturers.

State bed, in every style of needlework, from original designs and selections from the decorations by Raffaele, in the Vatican, and copies of the Aurora of Guido Reni, and Night by Thorwaldsen. The valances are of chenille, representing on a flat surface the folds of velvet, looped up by an imitation of gold cords and wreaths of poppies. The curtains are embroidered on blue satin and white watered Irish poplin. The counterpane is a combination of these designs; the canopy enriched by garlands of flowers, supported by angels. The bedstead is of carved wood, richly gilt, in the style of Louis Quatorze. The materials are principally of British manufacture.

This bed is represented in the accompanying Plate 119. Patterns for needlework.—The Prince of Wales; from a painting by Winterhalter, in the possession of His Majesty the King of Prussia. The Choristers and Companion; from paintings by H. Barraud, Esq. Lady Jane Grey's reluctance to accept the crown; from a painting by Leslie, in the possession of his Grace the Duke of Bedford. The surrender of Mary Queen of Scots to the Confederate Lords at Carberry Hill; from a painting by Chisholm. Luther, Melancthon, Pomeranus and Cruciger translating the Bible. Groups of flowers for seats, prie-dieu and other chairs, cushions, &c.

Patterns for crochet. Specimens of worsted yarns. Purse-silk and twist; embroidery and floss silk; and grounding silk, manufactured and dyed in England.

- 168 FORTUNE, ELIZA, 101 *St. George's Road, Southwark*—Producer.

Hearth rug, knitted by hand. Subject: the emblems of the United Kingdom. Centre: a dog.

- 169 FRANKLIN, JOHN D., 14 *Lower Ormond Quay, Dublin*—Producer.

Printed floor-cloth, 16 yards by 6, woven in one piece, without a seam, carpet pattern; another, to resemble inlaid woods.

- 170 FREWEN, ELIZABETH, *Marlow, Bucks*—Designer and Manufacturer.

Lace collar, cuff, lappets, and neck-tie, made by hand on the pillow; in which an admixture of silk with the thread greatly improves the appearance of the lace.

- 174 GARDNER, M. A., 22 *Great Leonard Street, Finsbury*—Manufacturer.

Mosaic inkstand mat, knitted in varied shades of Berlin wool. Miniature bassinet, knitted in double Berlin wool, with bed and cover. Chair-back cushion, with weights. The exhibitor is blind.

- 175 GEORGE, C., 33 *Oxford Street*—Proprietor.

Velvet pile carpeting.

- 176 GILBERT, J., 7 *Charlotte Street, Old Kent Road*—Designer.

Design for Axminster centre carpet.

- 178 HEYN, EMMA, 14 *Gloucester Terrace, Gloucester Road, Old Kent Road*—Producer.

Ornamental vase of flowers, made of Berlin wool, with the crochet stitch.

- 180 GREEN, R., *Lichfield*.

Folding screen, worked by a nun of the Convent of Mercy, at Birr, Ireland.

- 181 GREENWOOD, ANNE CHRISTIANA, *Brookwood Park, Aylesford*—Inventor.

Panels for decorating the walls of a room, painted with birds and flowers in the style of India paper.

- 182 GREGORY, THOMSONS, & Co., *Kilmarnock, Scotland*—Manufacturers.

Specimens of royal Wilton carpeting; of Brussels carpeting; and of Imperial carpeting. The first design by Mr. John Lauron, London; the other two by Mr. Thomas Barclay, Glasgow.

- 185 HALL, ANDREW, *Bank Buildings, Manchester*—Inventor.

Garden net, for shelter; and insect fender.

Glass substitute for hot-houses, green-houses, and small frames; preferable to glass, as a slow conductor of heat, and having a more equable temperature under its surface.

Canvases for embroidery, plain white, coarse, middle, and fine. Penelope, coarse, middle, and fine, with patterns of intermediate numbers, and of coloured canvas.

The above articles, with designs printed upon them, intended to be covered by the worker instead of copying a design from print paper.

- 186 HAMBURGER, ROGERS, & Co., 30 *King Street, Covent Garden*—Producers.

Specimens of embroidery and gold lace helmets, epaulettes, &c.

- 187 BLOOMFIELD, SUSANNA, *Poole, Dorset*—Manufacturer.

Needlework in Berlin wool:—Subject, "Raphael in the Vatican."

- 188 HANSON, CHARLES, *Fetter Lane*—Designer.

Design for an Axminster hearth rug, in the Italian style.

- 190 HARE, J., & Co., *Bristol*—Designers and Manufacturers.

Five floorcloth compositions, viz.:—One of chintzes; two of mosaic pavements; one of mosaic pavements; one of inlaid woods, and one of encaustic tiles. (*North Transept Gallery, Eastern Side*.)

- 191 **HARRISWORTH, MARTHA, Trichenham—**
Embroiderer.
Tapestry. "The Last Supper," worked in French floss silk.
- 192 **HARRIS, GEORGE, & Co., Stowport, and 59 Snow Hill, London—Manufacturers.**
Brussels velvet pile centre carpet, with border, for drawing-room, exhibited for design and quality.
Similar carpet, without border.
Brussels velvet pile centre carpet, with border, for dining-room or library.
- 193 **HARRIS BROTHERS, 87 Watling Street—Manufacturers.**
Embroidered satin apron and babies' cloak, lawn pocket handkerchiefs; cambric flouncings and insertions; all needlework.
- 194 **HARRISON, JOHN, Halifax, Yorkshire—Manufacturer.**
White hearth-rug, all wool, used for bed-sides, door-mats, carriages, &c.; superior for durability, and facility of being washed and dyed any colour.
- 195 **HARTNER, E. & G., 11 Edgware Road—Designers and Manufacturers.**
Registered couvré-pied, British emblems, designed and worked on a new silk canvas. Italian boy, worked and designed. Peter the Hermit. Deer-stalking. Joseph presenting his father to Pharaoh. Copies of a painting, worked.
- 196 **HARVEY & KNIGHT, Upper Marsh, Lambeth—Manufacturers.**
Specimen of floor cloth, pattern copied from a Roman tessellated pavement discovered at Aldborough, Yorkshire.
- 197 **HARVEY, JOHN KEIR, 25 Ely Place, Holborn—Designer.**
Designs for various kinds of printed fabrics; and for Brussels and other kinds of carpets.
- 198 **HATTEY, FRANCIS SHAFT, Hull—Designer and Manufacturer.**
Carpet; needle-work in Berlin wool.
- 199 **HELBRONNER, RODOLPHE, 261 Regent Street—Designer and Manufacturer.**
New style of needlework, similar to the Gobelins.
New designs, executed in silk and wool, on canvas.
New kind of canvas for embroidery.
Patent elastic draught, dust, and noise excluder, applicable with glue to doors, windows, wardrobes, pianofortes, and glass-cases. A light substitute for the heavy cord used in ladies' dresses.
- 200 **HENDERSON & Co., Durham—Manufacturers.**
Wilton, or pile carpet, in Raphaellesque style of ornament, of the 16th century.
Brussels carpet, for drawing-room, cinque cento style.
Wilton, or pile stair carpet, regular five frames quality.
Yard wide ingrain carpet. Yard-wide ingrain carpet, in bedroom style. Fine yard-wide damask Venetian carpet. Yard wide twilled damask Venetian stair carpet. Twilled Venetian stair carpet. Fine Venetian stair carpet.
- 201 **HENDERSON & WIDNELL, Laseauale—Manufacturers.**
Picture, or door curtain, 10 ft. 6 in. by 5 ft.; in one piece, fine velvet. Whytock's patent. Probably the largest piece ever manufactured on this principle. Style—Louis XIV.
- Rich patent velvet carpets, with centres, borders, and corners; same style.
Patent velvet sofa carpets, and rugs.
- 202 **HATCH, CAROLINE, Tunbridge Wells—Producer.**
Specimens of embroidery.
- 203 **HILL, BENJAMIN, Olney, Buckinghamshire—Manufacturer.**
Specimens of pillow-lace edging, suitable for collars, cuffs, sleeves, &c.; and insertion edging, suitable for caps, sleeves, stomachers, &c.
Pillow lace, suitable for infants' caps, ladies' caps, dresses, and flouncing.
- 204 **HILL & Co., High Street, Worcester, and Great Malvern—Inventors.**
Needlework for ottomans, screens, hanging for walls, table-covers, chairs, &c., of the following designs:—
Panoramic view of the village of Great Malvern, Worcestershire.
Sketch of Windsor Castle, taken from Eton College grounds, from a miniature view by Baxter.
Sunset view of the ruins of Tintern Abbey, from a lithograph.
Two views of Witley Court, from pencil drawings.
Portrait in miniature, from a painting by Leonardo da Vinci.
Executed by the sisters E., P., S., and O. Rogers, of the above firm.
- 205 **HINDHAUGH, MRS. MARY, Newcastle-upon-Tyne—Producer.**
Copies from Landseer's picture of "Bolton Abbey;" Taylor's "Hawking Party;" Herring's "Feeding the Horses;" and Schopin's "Arrival of Rebecca." Worked as tapestry.
- 206 **HINDLEY, C., & SONS, 134 Oxford Street—Designers and Manufacturers.**
Rich velvet carpeting. English hand-wrought carpets, Turkish style. Fine quality in original designs, elaborately flowered. Oriental carpets.
- 207 **HOLLOWAY, PHOEBE, Grove Buildings, Dorchester—Designer.**
Quilt knitted by hand, in one piece, with cotton.
- 208 **HOLMES, J., Kilkminster—Manufacturer.**
Carpets, commonly called velvet, suitable for dining or drawing rooms.
- 209 **HOPK, GEORGE CURLING, 17 Roberton Street, Hastings—Designer.**
Registered hassocks of common rush for the church or closet, with appropriate mottoes, in needlework.
- 210 **HUMPHRIES, THOMAS, Vicar Street, Kilkminster—Manufacturer.**
Specimen of super-velvet pile carpeting. Registered patterns.
- 211 **HURST, G., High Street, Bedford—Designer and Inventor.**
Pillow-lace, with glass introduced into the figure.
- 212 **HALLING, PEARSE, & STONE, Regent Street.**
Velvet pile and Brussels carpets, registered.
- 213 **LADIES' INDUSTRIAL SOCIETY, 76 Grafton Street, Dublin—Producers.**
Limerick lace: shawls, handkerchiefs, and caresses.
Spanish point, made in Ireland: caps, cuffs, and habit-shirts.

Old point, made in Ireland: fichus and frocks.
Real guipure, made in Ireland: head-dress and collar.
Crochet: caps, sleeves, collars, and frocks.
Embroidery: collars, caps, and handkerchiefs.
Cloth embroidery. Horse-hair ornaments.
Linen: hand-spun and wove sheeting.
Knitting: stockings, socks, and mittens.
Thread lace. Hand-spun flannel.
Appliqué: scarfs, caps, berthes, lappets, flounces, shawls, veils, and dresses.

213A SISTERS OF MERCY, *Kinsale, Ireland.*
Specimens of work: lace and embroidery.

214 ———
Knitting by a blind person: "Prayer for the Houses of Parliament."

215 JAMES, HENRY, 7 *Ferdinand Terrace, Pancras Vale*
—Inventor, Designer, and Producer.

Enamelled floor-cloth. Window-glass, ornamented by machinery, for halls, stair-cases, &c.

218 JOHNSTONE, J., 102 *Graham Street, Airdrie, Scotland*—Inventor.

Table-cover, consisting of 2,000 pieces of cloth, arranged into 23 historical and imagined characters, six equestrian scenes, a fox-hunt, and pantomime, with the regalia of Scotland in the centre. The design and execution is the sole work of the exhibitor, and it occupied his leisure hours for 18 years.

219 JONES, MARY, *Abbey Street, Chester*—Proprietor.

Bible cushion, copied, in fancy work, from a plan of the mosaic pavement in Canterbury cathedral, formerly composed of precious stones, gold, and jet.

220 COX, Miss A., 2 *Blossom Street, Norton Folgate.*
A rug worked from waste silk.

221 KEDDELL, JOHN STAPLES, *Sheerness*—Proprietor.
Armorial bearings, worked by the exhibitor in Berlin wool and silk.

222 BEACH & BARNICOTT, *Bridport, Dorset.*
Tapestry; a scriptural subject.

223 KETTLEWELL, MARY, *Clonmel, Ireland*—Proprietor.

Trimming lace, and lace berthes of different patterns. Large knitted lace collar, and fine lace lappet. Small thread lace scarf. Lace scarf, as fine as hair, done in Ardas.

224 KING, Miss, 3 *Bloomsbury Place, Bloomsbury Square*
—Designer and Manufacturer.

Medieval embroidery:—Design for a cover for the book of the Gospels, after the antique. St. John; design from a brass of Lawrence Seymour at Higham Ferrers. Royal arms, on a ground of cloth of gold.

225 KINGSBURY, LOUISA, *East Street, Taunton, Somerset*
—Designer, Inventor, and Manufacturer.

Basket of flowers, knitted in Berlin wool, from nature.

226 KITELEY, JOSEPH, *Kidderminster*—Manufacturer.

A Brussels velvet carpet in five-frame, green and gold; a Brussels velvet pile specimen in five-frame, white and oak; a Brussels carpet in five-frame, crimson and oak, suitable for drawing or dining rooms.

227 SCHOOL OF CHARITY, *Cangort Park, King's County, Ireland*—Producers.

Embroidered muslin, executed by the children of the school.

228 MOWLAND, CHARLOTTE G., 23 *Eaton Mews, South, Eaton Square*—Producer.

Wreath on white satin, with chenille and crape; design for an ornament or trimming. The exhibitor aged 11 years.

229 LAMBERT, ELIZABETH, *Timbridge*—Designer.

Embroidery—Full-length portrait of The Queen, in gilt frame.

A group of flowers, with vase, in carved oak frame.

230 LANCHENICK, JANE A., 5 *Brompton Row, Brompton*
—Designer and Manufacturer.

Table cover; garter blue cloth. The design, an oak and acorn border; the corners, the rose, thistle, and shamrock, with the edge scalloped; the whole embroidered in gold-coloured silk.

231 MACKELLAR & HAMPSON, 50 *Old Change, Cheapside*
—Producers.

Royal lace mantle, figured by a patent process (silk texture).

232 LAPWORTH, ALFRED—Producer.

Axminster carpets. Patent carpets. Velvet pile and tapestry velvet carpets.

234 DIGGES LA TOUCHE, Miss, *Killmaule, Ireland*—Inventor.

Specimen of lace flounce, worked by the poor girls of Killmaule, invented at the time of the famine, to enable them to earn sufficient for their support.

235 VICCARS, RICHARD, *Padbury, Buckingham*—Manufacturer.

Lace for young infants' robes.

Lace for trimming an infant's cot, or a flounce for a lady's dress.

Lace crowns for infants' caps, corresponding with the broad lace.

Insertion for forming the body of the caps.

Laces for bordering the caps.

236 LESTER, THOMAS, *Bedford*—Manufacturer.

Specimen of Bedfordshire pillow-lace, being an improved arrangement of an infant's lace dress.

Improved lace fall-piece, to avoid joining at the corners; lace fall, complete; length of wide white lace for falls; length of white and black trimming lace; length of flouncing lace.

237 FRYER, Miss N., *Barnsley.*
Crochet counterpane.

238 WHEELER, Mrs. JOHN, 42 *Dorset Street, Portman Square*—Producer.

An occasional table, mounted with appliqué embroidery.

240 LOCKWOOD, GEORGIANA, 31 *Great Titchfield Street, Oxford Street*—Manufacturer.

A child's fancy crochet frock.

241 LEE, J.—Producer.

Specimen of lace made by a poor woman in Stone, Aylesbury.

242 MACDONALD, MARGARETTA, 105 South Portland Street, Glasgow—Manufacturer.

Fancy needlework, worked with Berlin wool and silk. Subject—"Haddon Hall in the Olden Time," by Frederick Tayler.

243 MCFARLANE BROTHERS, Glasgow—Manufacturers.

Chenille hearth-rug, 7 feet 3 inches long by 3 feet 4 inches broad, with landscape design, from Loch-Long, Dumbartonshire.

Chenille hearth-rug, 7 feet long by 3 broad; landscape design. Chenille hearth-rug, 7 feet long by 3 broad, with design, tiger jungle, hills in the distance.

Chenille hearth-rug, 7 feet long by 3 feet 1 inch broad, with design, water lily or lotus. Chenille hearth-rug, 8 feet 6 inches long by 3 feet 5 inches broad; design, scrolls and flowers. Pieces of chenille carpeting, each 2 feet long by 2 feet 3 inches wide, with same design.

244 MALLALIEU, WILLIAM, Agent of the Moravian Establishments at Fulneck, near Leeds, and Ockbrook, near Derby—Manufacturer.

Worked handkerchiefs of Moravian embroidered needlework, from Fulneck and Ockbrook.

245 ———

A crochet toilet-cover.

246 M'CARTEN, H., 97 Great Charles Street, Birmingham—Manufacturer.

Ancient design of funeral pall for hearse. Design from Mr. Pugin's "Glossary of Ecclesiastical Ornament and Costume."

247 M'DARNID, MARY ANN, Bagthorpe House, near Nottingham—Designer and Maker.

Embroidered quilt.

248 MACLEAN, JANE, Tynan Rectory, Tynan, County Armagh, Ireland—Proprietor.

Imitation guipure lace flounce, worked by the children of Tynan Glebe school.

249 RICHMOND LUNATIC ASYLUM—Producers.

Quilt knitted by the inmates.

250 MELTON, ELIZA, 8 Peacock Terrace, Walkworth Road—Manufacturer and Proprietor.

Embroidery. Imitation in needlework of "The Last Supper" by Leonardo da Vinci.

251 MONKHOUSE, JOSHUA, & SON, Burnard Castle, and 75 Wood Street, Cheapside, London—Manufacturers.

Carpets, of Kidderminster fabric, cumber and point styles.

Dutch fabric carpets, all wool, and Dutch fabric carpets, warp made from silk noils.

252 MORTON & SONS, Kidderminster—Manufacturers.

Specimens of velvet pile carpets:—Crimson and colours (roses); ruby and chintz (flowers); crimson, green, &c. (lilies).

Saxony carpet:—crimson and oaks (scroll).

Brussels carpets:—white and gold (scroll); dark green and gold (ornament); royal blue and gold (ornament); ruby, crimson, and oaks (leaves); ruby, green, &c. (roses).

253 NAIEN, MICHAEL, Kirlabdy, Scotland—Designer and Manufacturer.

Floor-cloth, used for halls, lobbies, &c.:—No. 1. Chintz pattern, eight colours, imitation of fine carpeting. No. 2. Granite pattern, four colours, imitation of granite inlaid.

No. 3. Marble pattern, four colours, imitation of marble inlaid. No. 4. A combination of Nos. 2 and 3, representing marble and granite, inlaid alternately, showing that Nos. 2 and 3 can be made to work singly or together, thereby giving the advantage of three distinct patterns, with only two sets of blocks.

[The canvas employed in the manufacture of floor-cloth, is produced principally in the north, and in large quantities at Dundee. The size of the canvas, 6 yards or upwards in width, and about 100 in length, will convey an idea of that of the loom producing it. The application of the oil colours and patterns is effected in various places. Prior to this, the canvas is prepared for the reception of the paint by a coating of size. The paint and pattern are applied by hand, and the latter is effected by the usual process of block-printing.]

255 LEY, F., Victoria Cottage, Bickington, near Barnstaple, Devon—Producer.

A piece of needlework in floss silk, representing the Bible encircled with roses, with an appropriate motto in gold letters.

256 BUTCHER, Misses, 2 Clarendon Road, Notting Hill—Producers.

Variety of Berlin wool-work.

257 NEWCOMB & JONES, Kidderminster, and 19 Skianer Street, London—Manufacturers. THOS. PAUL, & Co., opposite the Mansion House, City—Proprietors.

Model carpet of superior velvet pile, representing the Arms of the Company of Mercers, with emblazoned border, &c.

Velvet pile carpet in breadths; design, "the vine and passion flower."

Best Brussels carpet, in breadths; of a white ground and scroll chintz.

258 NEWTON, JONES, & WILLIS, Temple Row, Birmingham—Church Decorators.

Robes, hoods, curtains, and veils, embroidered in silk and gold.

Satin damask hangings, woollen hangings, velvet-pile carpets, &c.

259 OLVER, LYDIA, Liskeard—Manufacturer.

Embroidered collar, stomacher, and sleeves.

260 OSBORN, MATILDA, 4 Sydney Square, Commercial Road East—Producer.

"Mary, Queen of Scots, mourning over the dying Douglas," in Berlin wool.

261 PADWICK, ANNE, Westbourne, Emsworth—Designer and Manufacturer.

A crochet table-cover in Berlin wool.

262 PALMER, HELEN, Dunse—Producer.

Panel for a pole-screen, embroidered in coloured silks, upon white satin.

Lady's dress, embroidered in cherry-coloured silks, upon white silk.

Cushion for a chair, embroidered in coloured silks, upon white satin.

263 PARDOE, HOOMANS, & PARDOE, Kidderminster—Manufacturers.

Whytock's patent tapestry carpeting, in Brussels and velvet pile. The colours are permanently printed on the worsted before it is woven.

Skein of the worsted. Patent Berlin rugs.

264 PATENT CAMPHINE COMPANY, *Hull*—Producers.
A variety of rugs.

265 PATENT UTRECHT COMPANY, 36 *Steward Street, Spitalfields*—Producers.
Lace curtains, patent silk lace dress and curtains; patent lace quilt, scarf, and curtains; Spanish mantilla.

266 PEARSE, CLARA, *Broad Street, Bath*—Designer.
Crochet bed-quilt, illustrated with the Ten Commandments in the centre, with imitation of point lace border. The designer 14 years of age.

268 PERRY, EDWARD, The Rev., 26 *Portland Place, Leamington*—Producer.
Scarf composed of British silk, being the produce of 2,000 silk worms, which were kept in an out-house at Goodrich, in Herefordshire. The silk was wound from the cocoons and spun by Mrs. Perry and her daughter; after which, it was made into the scarf now exhibited. The silk is in its natural or raw state, unmanufactured, and the colours of the silk produced by the male and female worms are preserved.

[In a preceding class will be found a brief notice of the labours of the late Mrs. Whitby to introduce the culture of the silkworm into this country. This notice accompanies a banner entirely wrought out of silk produced from worms bred in England. In the present, as in other instances exhibited, the same success has attended this art.—H. E.]

269 HEALD, BENJAMIN, *Old Swinton, Nottingham*—Designer.
A design for Honiton lace flouncings.

270 HALLOWELL, MRS. E., *Limerick*.
Knitted lace scarf.
Specimens of knitting by the poor Irish children near Limerick.

271 PHILLIPS, EMILY, 166 *Bermondsey Street, Southwark*—Producer.
“La Vendredi”—eating meat on Friday.

272 PHILLIPS, REBECCA, *Swanbourne, Wmslow*—Manufacturer.
Ornamental linen-thread pillow-lace.

273 PICKTHORN, ESTHER, *George Street, Hockley, near Birmingham*—Manufacturer.
Hearth-rug, raised, in needlework.

275 READ & HUMPHREYS, 21 *Clare Street, Bristol*—Manufacturers.
Folding screen on canvas, worked in cross and tent stitches. Two figures playing chess.

276 RISDON, JOHN, 194 *High St., Exeter*—Proprietor.
Fancy silk and velvet quilt.

278 ROBINSON, Miss, *Newport Terrace, Bolton, Lancashire*—Designer.
Group of flowers worked in a new style, from an oil painting, by the exhibitor.

280 RODGERS, JOHN, & SON, *Islington, near Birmingham*—Manufacturers.
Purses, embroidered in the weaving: such embroidery having been previously done only by hand.

281 ROLLS, JAMES & GEORGE, & SON, *Lower Kennington Lane*—Manufacturers.
Piece of floor-cloth.

282 ROLPH, JONAS, *Coggeshall, Essex*—Manufacturer.
A dress with two flounces, a fall, a berthe, and a lappet, in imitation of Brussels point lace, in tambour-work; exhibited for workmanship.

283 ROOME, ANN EMPRINGHAM, *Beaumont Hill, Lincoln*—Designer and Manufacturer.
South-west view of York Cathedral, worked upon white silk, with the rovings of black lutestring and manufacturers' silk.

284 ROYAL VICTORIA ASYLUM for the BLIND, *Newcastle-upon-Tyne*—Designers and Manufacturers.
Shawl, knitted of wool. Queen's veil, knitted in imitation of lace. Jenny Lind veil: and baskets. Manufactured by the blind inmates of the asylum.

285 RUSSELL, SARAH ANN, *Bromsgrove, near Worcester*—Manufacturer.
Berlin wool work. Subject—Joseph presenting his father to Pharaoh.

286
Crochet wool toys: a tea service, &c.

288 SEWELL, EVANS, & CO., 44, 45, & 46 *Old Compton Street*—Proprietors.
Straw-work on crape, applicable to various other fabrics. A patent Axminster carpet.
Rich figured damask silk, brocaded in various colours. Plain moire antique.
Figured damask, made in a Jacquard loom.
Specimens of knitting, &c., by poor Irish children.

289 SHAKELL, MARIA, FANNY & EDWARD, *Belle Vue Cottage, Shirley, near Southampton*—Producers.
Needlework: Scripture subject, mounted in a frame designed and executed by E. Shakell.

291 MORANT, J., 91 *New Bond Street*.
Various carpets.

293 SHEDDEN, HUGH, 38 *Stanhope Street, Liverpool*—Manufacturer.
Royal standard of England, made of bunting, the article used for flags in the marine service; the devices embroidered on the whole cloth, of Berlin wool.

294 SHERIDAN, PETER, 22 and 23 *Parliament Street, Dublin*—Manufacturer.
Brussels and Kidderminster carpeting, manufactured at 23 Pimlico, Dublin. Hearth rugs.

295 HEALD, HENRY, *Old Swinton, near Nottingham*—Designer.
A design for a black lace shawl.

296 SHIBER, ALEXANDER, *Cheltenham*—Designer.
Cut-pile Brussels carpet, foliage British oak with acorn, horse-chestnut leaves and blossom, with fern and palm leaves. Manufactured by H. Brinton and Sons, Kidderminster.

298 SHULDAM, HARRIET, *Dunmanway, Ireland*—Producer.
Lace work.

299 SIBTHORPE, FANNY LOUISA, *Limerick, Ireland*—Producer.
Piece of Berlin work, subject “Haddon Hall in the days of yore;” and the “Morning of the Chase,” in a carved oak frame.

SIM, C. J., *High Street, Bedford*—Manufacturer.
dorsetshire pillow-lace.

SIMCOX, G. P., *Kidderminster*—Inventor and Manufacturer.
no large finger worsted rugs, containing the arms of
borough of Kidderminster.
small sample of velvet carpet, made on the occasion of
marriage of H.R.H. the late Princess Charlotte with
the Leopold of Saxe-Cobourg.
registered pattern of double-breadth second Brussels.
stated patterns of Brussels velvet, woven on new
looms.
several coloured designs of carpets called the patent
car, woven by steam-power.

SMITH, Mrs. RICHARD, *Botolphclaydon, Staplehurst, Kent*—Manufacturer.
carpet in wool; the Queen, the Princess Royal, and
Prince of Wales.

FOSTER, RUTTY, & Co.
embroidered lace curtains.

STOKES, STEPHEN, *Kevin Street Police Barrack, Dublin*—Inventor.
table cover of mosaic cloth-work, representing the
arms; the royal family at a review; the capture of
French eagle by the royal dragoons at Waterloo; a
chase from Ballingarry; war chariot, &c.; all composed
pieces of cloth fine-drawn together.

SUTTON, ELIZA, *Maidstone*—Designer and Manufacturer.
fine white crochet bed-quilt, the centre composed of
carpet of flowers, above which are three scriptural sen-
tences, in English, French, and German; below the
centre are three other scriptural sentences, in Italian,
Spanish, and Latin; at each side is a scriptural sentence
in English; in the borders are dates and allusions to the
Exhibition, in English: the whole finished with a
pink lace, and lined with pink cambric.

SCOTCHERLAND, JANET, *Falkirk, Scotland*—Inventor,
Designer, and Manufacturer.
drawing-room table-cover, embroidered with coloured
work on a black satin square or ground; in a new style;
flowers, figures, &c., are formed and arranged without
aid of drawings or patterns.

TARIN, M. L. A., *8 Nelson Street, Mornington Crescent, Camden Town*—Designer and Inventor.
Berlin wool needlework.
lamp pillar, &c.

TATLER, ANN MARIA, *Middle Chinnock*—Proprietor.
historical piece of needlework in wool—Mary Queen of
Scotland weeping over the dying Douglas.

TENNISON, Mrs. M. A., *8 Broughton Place, Hackney Road*—Producer.
pair of papier maché, of the Elizabethan style, inlaid
mother-of-pearl of all colours, with cushion of
needlework.

TEMPLETON, J., & Co., *Glasgow*—Manufacturers and Patentees.
tent Axminster carpets, intended for drawing-room;
dining-room or library; in Persian style, for dining-
room or drawing-room; and in Turkey style, for dining-
room, &c.
carpets bordered and chintz fitted for parlour or
drawing-room; hearth-rugs, patent Axminster; breadth
ticking; stair or landing carpeting; Tournay table
cloth; piano covers; and door or window curtains.

[These carpets, rugs, &c., are woven in the loom, and
not tufted or knotted to the warp as in the older method
of making such goods. The worsted being thrown entirely
to the surface of the fabric, instead of appearing on both
sides, economises the material, and gives a smoother
surface.]

316 JOHNSON, GEO., & Co., *11 Bow Churchyard, and 4 Bow Lane*—Manufacturers.
Mourning collars, &c.

317 THWAITES, MARY, *4 Quadrant Road, Lower Islington*—Proprietor.
Fine knitted thread shawl. Valenciennes lace bonnet.
Knitted bonnet and parasol. Embroidered cambric hand-
kerchiefs. Cambric pincushion, with arms of England
embroidered. Crochet d'Oyley. Specimens of imitation
Valenciennes lace. Manufactured by the poor children
of Newry.

318 TURBEVILLE, SMITH, BOYLE, & Co., *9 Great Marlborough Street*—Producers.
Axminster carpet. Velvet pile tapestry carpet, de-
signed from native flowers. Brussels carpet, of Eliza-
bethan design, crimson and oak.

320 TROLLOPE, ROSE, *6 Allen Terrace, Kensington*—Producer.
Folding screen of tapestry work.

321 CARDINAL & Co., *St. Helen's Place, Bishopsgate*.
Persian and Turkey carpeting.

322 TURNER, AGNES, *Sutton Rectory, Dartford*—Manufacturer.
Knitted lace scarf, three yards long, and three quarters
wide.

323 UPHILL, MARY ANN, *Fonthill Bishop, Salisbury*—Designer and Manufacturer.
A cushion for the toilet, composed of thread and fine
gold twist of different texture. In the centre of this
work is introduced the profile of Her Majesty, Prince
Albert, and all the Royal Family, with their initials.
The band round the work has this motto worked in letters
of lace,—“Long live Victoria Queen of England, Prince
Albert, and all the Royal Family.” The whole work is
ornamented with the Crown of England, the Rose and
Thistle, Bible and Sceptre, and other emblems of Royalty.
Twist, of different texture, in cushion lace.
A lace scarf, and a bassinette lace cradle-cover of
similar manufacture.

324 VEEVERS, LETITIA, *Mohill, County Leitrim, Ireland*—Producer and Inventor.
Articles manufactured from the fibres of plants and
flowers, viz.:—From the common nettle, pocket handker-
chiefs trimmed with lace of the same material, shawls,
scarf, bonnet, parasol, lace collar, and veil; from the
hemp nettle, parasol and veil; from the Lavatera, parasol
and veil; from the honey plant, parasol; from the sweet
pea, bonnet and lace collar; from the honeysuckle, bon-
net and lace collar; from the nasturtium, parasol; from
the Keria japonica, bonnet; from the marsh mallow,
bonnet; from silk, mittens; from the bee plant, a cap.
Shawl of nettles.

Specimens of the flax and threads from which the
preceding articles are manufactured.

325 LAWSON, JOHN, *4 Southampton Street, Gray's Inn Road*—Designer.
Axminster hearth-rug, manufactured by Blackmore
Brothers, Wilton. Various designs for carpets. Speci-
mens painted on ruled paper for the weaver.

327 THE VICTORIA FELT CARPET COMPANY, 8 Love Lane, Wood Street—Manufacturers.

Specimens of patent felt carpeting. Printed and embossed table-covers, felt. Embossed window curtains, felt. Fine cloth, felt.

Manufactured at Leeds, and printed in London.

328 VINCENT, SAMUEL, Turvey, near Olney, Bucks—Manufacturer.

Bedford and Buckinghamshire pillow-lace, veils, lace collars, and lace. Name and address in letters, formed of lace. Lace, pillow and bobbins, by which the lace is worked.

329 VOKES, FREDERIC S. T., 9 Hope Cottages, Cottage Grove, Bedford New Road, Clapham Rise—Designer and Manufacturer.

Superfine scarlet cloth table-cover, braided with upwards of 2,000 yards of black mohair cord, executed without patterns or pouncing, on a new principle.

330 HAYES, ELEANOR JANE, 24 Richmond Terrace, East Street, Wulworth—Designer and Manufacturer.

Pictures composed of needlework and steel beads:—The successful deer-stalkers of the Highlands. Three chorister boys. The royal arms of England. Two country girls (seated in a shrubbery). The Last Supper. The novelty of these articles consist in their being of needlework, and forming a surface of glass, representing figures, animals, and foliage.

334 WARD, ANNE, Coleraine, Ireland—Designer and Executor.

Specimens of needlework. View of "The Giant's Causeway;" an "Italian scene," by Vernet; and an "Arctic scene." The groundwork is linen in the first view, and lutestring in the others. The work is an imitation of line engraving, and the material employed, cotton and silk thread.

335 WASHBOURN, ANN, Great Marlow, Bucks—Manufacturer.

A muslin small dress over a blue slip, embroidered. A boy's embroidered muslin dress. A child's frock.

336 WATERHOUSE, EMMA ISABELLA & MARIA ADELAIDE, Claremont Cottage, Loughborough Road, Brixton—Makers.

Crochet counterpane, 12 feet square, worked in Strutt's cotton, representing a variety of flowers; the centre of the counterpane a cluster of roses encircled with a wreath of flowers and leaves; the insertion composed of a wreath of lilies, entwined round a pole; at the four corners are a trumpet flower, a rose, a convolvulus, and a wild rose; finished off with a deep edging. The patterns were all designed by Wilks, Regent Street.

337 WATSON, BELL & Co., 35 & 36 Old Bond Street—Manufacturers and Importers.

Extra superfine Axminster carpet, designed by Lewis Gruner, Esq., exhibited by Her Majesty the Queen. The design of this carpet is represented in the accompanying lithograph drawing.

Carpet in the renaissance style, designed by John Lawson.

Carpet in the Louis Quatorze style, designed by M. Brandeley.

A superfine Axminster carpet in the Italian style and colouring, designed by James Crabb.

A fine Axminster carpet, in the Persian style and colouring, adapted for dining-rooms. All manufactured by Blackmore Brothers.

Superfine velvet bordered carpet, crimson and chintz designed by John Lawson.

Brussels carpet, bordered, in the Persian style, applica-

ble to rooms of any size, at the ordinary cost of Brussels carpet.—Designed by John Arbuthnot, and manufactured by Watson & Co., Kidderminster.

Carpets manufactured in the province of Masulipatam, and imported from Madras.

Real Turkey carpets, manufactured at Ushak, in the province of Aidin, and imported from Smyrna.

339 WAUGH & SON, 3 & 4 Goodge Street—Designers.

Royal velvet pile carpet, purple ground. An allegorical design for a carpet for a Royal palace.

341 WELLS, B. W., Windmill Lane, Camberwell—Manufacturer.

Registered floor-cloth, the pattern being an imitation of Berlin wool work, printed in gold and lake colours.

343 WHITE, SON, & Co., 78 Watling Street, and 108 Cheapside—Proprietors.

Kidderminster, cut pile Brussels, velvet pile tapestry, and square velvet pile carpets. Printed cloth table-covers. Silk worsted damasks.

345 WHITWELL, JOHN, & Co., Kendal—Designers and Manufacturers.

Kidderminster carpeting. Twilled Venetian carpet, woven in a power-loom, and with variety of colour and texture. Improved Brussels carpet, with new arrangement for pile and texture. Berlin hearth-rug, new design and material.

347 WHITNEY, E., Cleveland Place, Bath—Designer.

Embroidered lady's apron. Coat of arms in needlework.

349 WILLIAMS, Lady GRIFFITH, Marlborough—Producer.

"The Last Supper," from the painting by Leonardo da Vinci, worked in German wool and floss silk.

350 WILSON, ANNE, Downpatrick, Ireland—Manufacturer.

Fancy work in wool—subject, "Shipwrecked sailor;" in which new stitches, invented by the exhibitor, are introduced to give effect to different parts of the picture.

352 WOOD, HENRY & THOMAS, 22 Watling Street—Proprietors.

Printed and embossed cloth table-covers. Printed all over cloth.

Brussels carpet.

354 WOODWARD, B. HIGGINS, Kidderminster—Manufacturer.

Large velvet pile carpet, in the ornamental style. This species of carpeting is capable of being made to any required length or width, and in varied colourings, to correspond with other furniture; and can be produced at the ordinary price.

Specimens of the same pattern in Brussels quality, and varied colourings, showing its adaptation to the style of any room, with border for the same.

Specimens of various colourings of the "oak branch," in Brussels quality.

Specimen sketched from the Acacia, in Brussels quality.

Specimen of wool netting, for tray covers.

355 WOODWARD, HENRY, & Co., Church Street, Kidderminster—Manufacturers.

Carpets:—Velvet pile, ruby ground, with stems and chints flowers, and border surrounding it, for drawing-room floors.

Brussels pile, arabesque pattern, for dining-room floors.

die, scroll on a rich crimson ground, for floors.
a, ivy leaves and stems, lying on moss and for stairs and corridors.
red designs.

DOCK, CATHERINE, 13 *New Quebec Street, Portman Square*—Manufacturer.

room. Design, the arms of England, surmounting drapery, and intersected with branches of pendant wreaths of the rose, shamrock, and interlaced with silk in numerous colours.

HAW, MATILDA EMILY, *Regby, Warwickshire*—Designer and Manufacturer.

and in crochet in imitation of point lace; trefoil, and thistle.

HE, CRUMP, & CRANE, *Kidderminster*—Manufacturers.

a, dining-room, drawing-room, and boudoir laced complete.
upsets, for dining and drawing rooms.
etc.

ROBERTS, Mrs., *Basley*—Producer.
counterpane.

JR, CHARLES, 2 *Providence Place, Prospect Row, Woolwich*—Inventor.

r, or bed-quilt, containing 3,330 pieces, and silk. Made by the exhibitor.

H & BAKER, *Knightsbridge*—Inventors, Designers, and Manufacturers.

b, in imitation of ancient tessellated paving a centre and borders, being copies of pavements discovered in England.

as, copy of Roman tessellated pavement discovered in England, and in style of Roman tessellated

ED, HON. JANE GRACE, *Cork, Killrogan, Bandon, Ireland*—Producer.

uilt for a baby's crib. Knitted bag. Exhibited of the workers, the children of Killrogan and Bandon.

2, Rev. H. E., *Lucan, Dublin*—Producer.
of Irish lace, the work of the Lucan Industries.

C. MARY, 1 *Brougham Terrace, Kingstown*,—Designer, Inventor, and Manufacturer.

lack lace, embroidered in a new style, in of different colours, interspersed with wings of beetle.

or ladies' dress, of same materials and work.

3, JEMIMA, *Great Dover Street, Surrey*—Designer.

of needlework upon machine net; handkerchiefs' cap.

MPLE, MARY ELIZABETH, 37 *Cosehill Street, on Square*—Inventor and Producer.

r of fawn-coloured cloth, embroidered with very pattern. An embroidered quilt.

UNT, CATHERINE, *Grimsthorpe, near Bourne*—Designer and Manufacturer.
-quilt.

379 LADY MAYORNESS (1850), and 150 LADIES OF GREAT BRITAIN the executants. The design by John W. Papworth, Esq., Great Marlborough Street; the patterns painted by, and the work executed under the superintendence of, W. B. Simpson, West Strand.

A Berlin wool carpet, 30 feet long and 20 feet wide, worked in detached squares, which have been subsequently joined together to form the complete design. An illustration of a branch of manufacture which may afford to its executants a recompense more liberal than they can obtain in most other sorts of needlework.

This manufacture may also apply to the entire decoration of a room, as tapestry, furniture, &c. The initials of the executants form the ornament of the outside border. The whole design is connected by wreaths or bands of leaves and foliage, the centre group representing the store from whence they have been distributed.

Part of the patterns of the Berlin wool carpet exhibited by Her Majesty. The whole design is painted in one piece as a picture; on being subdivided the squares have the thread lines printed upon them. By this arrangement the setting out the pattern or second painting on squared paper from a picture first made is rendered unnecessary.

381 GEORGE, J. B., 4 *Wells Street, Gray's Inn Road*—Designer.

Design for an Axminster centre carpet, in the Italian style.

382 BRAYSHAW, JOHN, 118 *Church Street, Lancaster*—Producer.

Counterpane of mosaic needlework, 12 feet long by 10 feet wide, divided into 44 compartments, each representing a popular print, worked up of coloured pieces of cloth, without colouring matter; with scroll on the border, of new design.

384 KIDDLE, JOSHUA, *Norwich*—Inventor.

Woven cushion, completed in the loom without the aid of needlework; figured on both sides.

386 GILL, WILLIAM LEWIS, *Colyton, Axminster*—Manufacturer.

Honiton lace:—Portion of an original design, intended for the founce made for Her Majesty.

Portion of a new design for a scarf.

Collars in various designs.

Colyton chromatic silk berthe, made on the pillow.

Silk lappet, designed from the Alhambra, made on the pillow.

Lace scarf, berthe and sleeves.

Patterns of lace.

388 AYEES, WILLIAM, *Newport Pagnell, Bucks*—Producer.

Specimens of Buckinghamshire pillow-lace pieces.

390 JACKSON & GRAHAM, 37 & 38 *Oxford Street*—Producers.

London carpet; the border formed by palm leaves and flowers; shields with fruit in each corner; group of flowers in the centre; and filled up with crimson scrolls on a marone ground.

Carpet, of Moresque design.

Carpet, with flower upon dark marone ground, border in panels, and medallions, with arabesque scrolls and flowers.

Specimens of velvet pile carpets. Patent tapestry velvet carpet and border; design, orchidaceous plants upon dark green ground. Carpet,—roses upon dark marone ground.

London rugs.

Carpet loom at work. (*North Transept*).

391 TAWTON, MARY, 9 Union Street, Plymouth—
Manufacturer and Designer.

Child's cloak, braided, embroidered, and interspersed with open work.

Its novelty consists in the introduction of open work into French merino; exhibited for the style of braiding, the embroidery, and the difficulty of execution. The open work, although having the appearance of insertion, is worked in the same material.

392 PENLEY, E. A., Grove House, St. Peter's, Margate—
Designer and Manufacturer.

Silk patch-work table cover, box pattern, containing upwards of 2,000 pieces, and 500,000 stitches.

394 BENNOCH, TWENTYMAN, & RIGG, 77 Wood Street—
Manufacturers.

Black and coloured ribbons. Shoe ribbons and ferrets. Silk handkerchiefs.

For dresses, mantles, &c.:—Cameo, lace, and self-quilling trimmings. Fancy braids.

Silk fringes, plain, glacé, Naples, and fancy headings. Bullion fringes, plain and fancy headings. Silk gimps and cords. Girdles.

Gimp, strand, and Naples cord on bobbins, for manufacturing purposes. Silk and cotton wire for bonnets. Silk laces for boots.

Sewing-silk, for the use of tailors and milliners.

Silk twist, in balls and on spools, for the use of tailors.

Netting-silk, for purses, hair nets, &c.

395 BEAVIS, J., 27 Mint Street, Borough—Manufacturers.
A hearth rug.

396 HEAL & SON, Tottenham Court Road—
Manufacturers.

A crimson satin eider-down quilt, with white satin border, embroidered in colours. (This quilt is represented in the accompanying Plate 141.)

Duvét in blue and gold silk, filled with eider-down, to lay across the foot of a bed.

398 SCAFFELD, LEAH, 4 Dean Street, Finsbury Square—
Producer.

Portrait of Her Majesty and His Royal Highness Prince Albert, in Berlin wool work.

Cartoon: subject, "The finding of Moses in the bull-rushes," in Berlin wool work.

400 BENTINCK, Colonel HENRY, for ROBERT PALMER—
Producer.

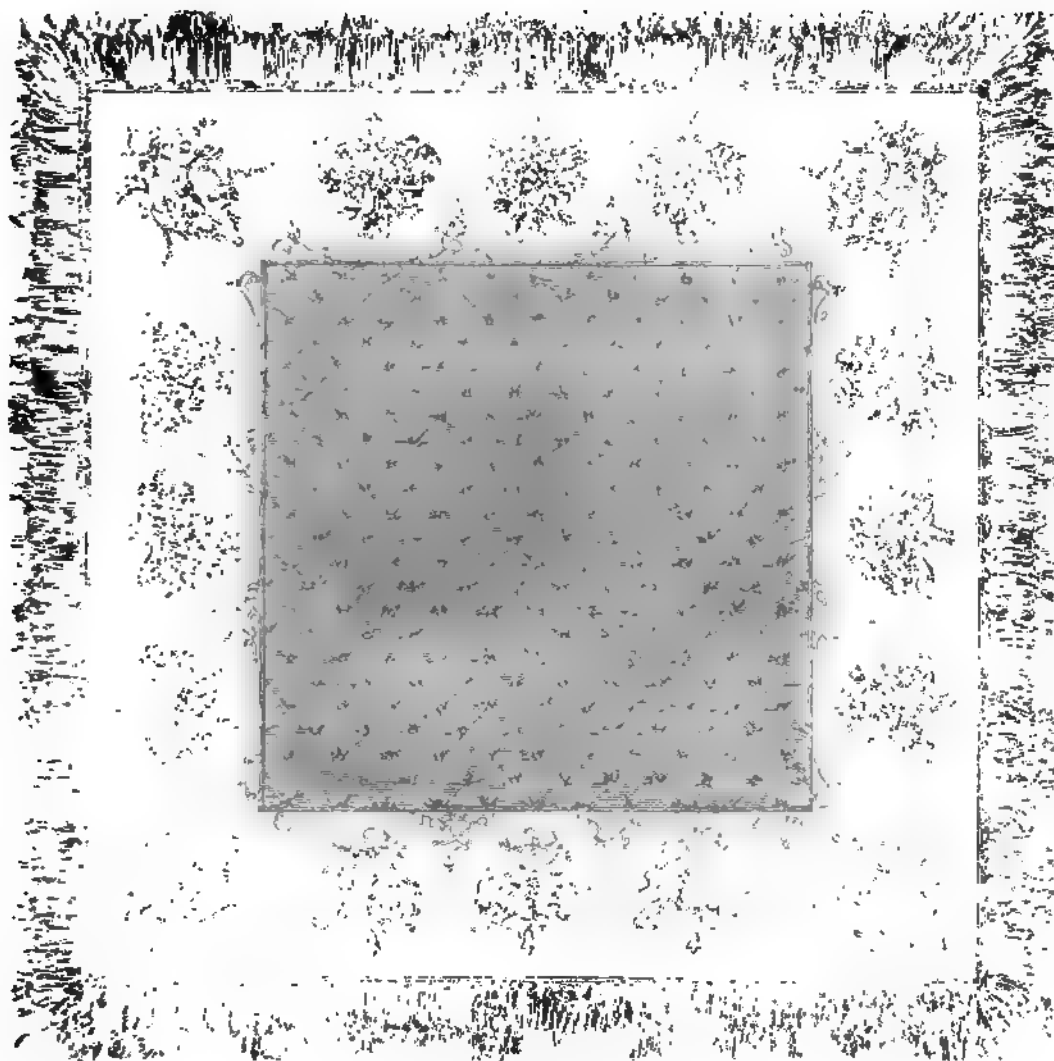
A table-cloth, showing, in embroidery, the Royal Arms, and different devices, made by Robert Palmer, a private soldier of the 1st battalion Coldstream Guards.

403 UNDERWOOD, W., 1 Vere Street, Oxford Street—
Manufacturer.

Heraldic tapestry hanging, being a new application of heraldry to tapestry, hangings, portières, &c. The Royal Arms in the centre can be replaced by those of any other family.

Tapestry hangings of silk and worsted combined. The design composed from the artichoke and its foliage, adapted for hangings and portières. (*North Central Gallery.*)





47. CRIMSON SATIN EIDER DOWN QUILT, WITH WHITE SATIN BORDER. MISSISS, HICAL AND SONS.

glove, thrown down, was a mode of challenge; and still is practised as one of the forms at a royal coronation. Queen Elizabeth, it is well known, was very fond of gloves, of which numerous presents were made to her. White gloves are also presented to the Judges on occasion of a maiden assize, the exact significance or origin of which practice has never been satisfactorily explained. Leather gloves are now made at Worcester, Yeovil, Woodstock, and London; and were formerly made at Leominster and Ludlow, but the trade in the latter places is quite decayed.]

3 TAYLOR, WILLIAM GEORGE, 285 Regent Street—Proprietor.

Balbriggan lace-stockings, of fine texture and elaborate patterns. Balbriggan stockings, of the full size, weighing 9 ounces.

Lambs-wool stockings, knitted by the hand at Ballindine, Mayo, Ireland.

Specimens of hand-knitting, in hosiery, by children at Ballindine, exhibited for regularity and workmanship.

4 HALL, J. SPARKES, 308 Regent Street—Manufacturer.

Elastic stocking-net boots, elastic webbing, and improved elastic materials for boots and shoes.

5 PEART & DOSSETOR, 12 and 13 Poultry—Inventors.

Four-threads cotton glove half-hose. Patent Angola and silk glove half-hose.

Ladies' four-thread glove hose. Black and white silk glove hose.

Cotton and woollen drawers, with elastic ribbed cotton gussets.

Railroad caps and protectors. Improved nightcaps. Silk shirt fleeced, for rheumatism. Fine real Welsh flannel. Silk and Segovia half-hose. Improved worsted braces, with broad shoulder-plates.

6 POPE & PLANTE, 4 Waterloo Place, Pall Mall—Manufacturers.

Specimens of hosiery. Beaver fur stockings, and scarf, made on the hosiery frame.

Registered elastic netted corsets, of silk and caoutchouc. Elastic netted belt, stockings, socks, leggings, and kneecaps. Cotton and silk stockings, and other apparel.

7 NEVILL, J. B. & W. & Co., 11 Gresham Street West—Manufacturers.

Men's cotton half-hose; striped various, made principally for export; striped red and blue, superior colour and manufacture; and made colours.

Women's white linen thread hose, and men's linen thread half-hose, made from Irish flax.

Gentlemen's imitation silk thread half-hose and caps, solid colours; and cotton half-hose, pink.

Ladies' imitation silk thread hose, fine, very fine, and coloured; the same, open-worked very fine, and cotton improved pattern.

Gentlemen's open-worked caps for warm climates and summer wear.

Ladies' white cotton hose adapted for Spain and South of Europe; white hose manufactured from Colonial cotton, of improved elasticity; and patent black cotton hose, colour fast and clean.

Men's white cotton pantaloons drawers with improved broad linen waistbands.

Ladies' white cotton chemises manufactured with improved sleeves and shoulder portion in a superior manner throughout.

Gentlemen's stout merino wool pantaloons drawers, with supporting elastic knee.

Ladies' extra fine Australian wool waistcoats, with long sleeves, &c., improved in softness and preparation, pink and scarlet.

Ladies' cotton waistcoats, improved shapes, light and durable.

Gentlemen's mixed silk and Australian wool under waistcoats, improved shapes, light and warm.

Ladies' extra fine merino wool hose, improved elasticity, warm and free from shrinking; and gentlemen's half-hose of the same wool.

Gentlemen's cotton hose with mixed silk and wool ankles.

Ladies' fine mixed silk and wool hose, superior frame work.

Ladies' superfine bleached and unbleached cotton waistcoats, improved shapes and manufacture: these are shaped in the frame to any size and figure.

Men's stout and fine unbleached cotton pantaloons drawers, new ribbed waistbands, and double frame-worked substance.

Ladies' extra fine Australian wool and fine Cashmere wool under waistcoats.

Gentlemen's fine Cashmere wool under waistcoats, improved in softness.

Men's stout worsted and extra fine worsted under waistcoats.

Men's striped shirts or Guernseys for export or seamen's use.

Men's white cotton half-hose, and brown cotton half-hose, various qualities. Ladies' cotton hose, rose colour.

8 GREGORY, CUBITT, & Co., 15 Aldermanbury—Importers and Manufacturers.

Straw, from the wheat rick; cut into lengths and sorted into sizes; washed and bleached, for cutting into splints; and cut into splints, for plaiting.

Plait, made from the whole pipe-straw, called whole straw-plait; made from the straw cut into splints, called split straw-plait; and made from the splints united, called patent straw-plait.

Bonnet, made from the whole pipe-straw, called "whole straw" bonnet; made from the split straw-plait, called "split-straw" bonnet; and made from the plait, with the splints united, called a "patent straw" bonnet.

Specimens of different kinds of straw-plaiting, viz. cord, whole straw, cord patent, China pearl, &c.

Plait, made from the splints, with the straw reversed, called "rice patent plait."

Various kinds of rice plait.

Bonnet made from rice patent plait.

Tuscan grass, as imported; as cut into lengths, and sorted into sizes; and as washed and bleached, and prepared for plaiting.

Plait made from the stem of the Tuscan grass, called "dark Tuscan plait;" and made from the upper part of the grass, called "light Tuscan plait."

Bonnet made from the dark Tuscan plait.

Hat made from the light Tuscan plait.

Specimens of the various kinds of Tuscan plait.

Block of wood, as cut from the poplar tree; as cut into splints for plaiting; the splints washed and bleached for plaiting.

Specimens of various kinds of plaiting, from the splints called "British chip plait."

Bonnet made from a piece of the same, called "British chip bonnet."

Block of wood from the willow tree; as cut into splints, for weaving into square sheets; the splints washed and bleached, prepared for weaving.

Specimens of willow square sheets, from the loom.

The willow shape, for the foundation of silk bonnets.

White willow bonnet; coloured willow bonnet, made from the sheets.

Straw splints, for weaving into trimmings.

Specimens of straw trimmings; the loom in which they are made.

Bonnet, made from the straw trimming.

Horse-hair in its rough state; and washed and bleached for weaving into trimmings.

Specimens of horse-hair trimming. Bonnet made from it.

Flag-grass, as imported from Cuba; and as washed, bleached and cut, prepared for plaiting; hats, from the same, called "Brazilian hats."

t-straw is the straw of the wheat plant, selected from crops grown on dry chalky lands, such as about Dunstable. The middle part of the straw the last joint is selected; it is cut into lengths of eight inches, and these are then split. The Leghorn or plait is the straw of a variety of bearded wheat, expressly on poor sandy soils, pulled when green, then bleached. Other kinds of the grass tribe, wheat, furnish straws available for plait-work.—

TE & HARVEY, 6 Pilgrim Street, Ludgate Hill, and Tottenham—Inventors and Manufacturers.

white bonnet, patented by the exhibitor, which can, and alter to any shape, and look equal to new. registered carriage bonnet, composed of crape with tufts of silk, worked by the needle, in all dress opera bonnet, composed of gauze and ribbon and make. set composed of ribbon and areoplane, for the or promenade.

FIELD, JAS., & SONS, 114 Fore Street, Cripplegate, and Harpenden, Herts—Manufacturers.

oved Dunstable bonnet; twisted edge whole pipe ble; split straw bonnet; double split straw, called t Dunstable; rice straw bonnet, plaited with the side out; satin straw bonnet with rock edge; fancy and black and white fancy mixed bonnet; black ite satin and fancy rock mixed bonnet.

r bonnets in new designs and combination of ls. Specimen of wheat straw from which pipes are for plaiting; and of the inner pipe drawn from at straw.

ine for splitting straws of various degrees of fine-

each straw plaiting; the same, clipped and d; block of wool of the poplar-tree; bleached s of the same for plaiting.

c and white satin and crimped split straw Chinese

; and white crochet and split straw "Duc d'Au-

n and white ladies' crimped hats.

straw-plait manufacture has had its local estab- in England about eighty years, and is now on principally in Bedfordshire, Herts, and Buck- shire: at Dunstable this manufacture has long ceess-fully prosecuted, and employs large numbers iduals. The name of this town has been con- with that of its productions, and used to charac- ertain descriptions of straw-plait. "Whole Dun- signifies that the plait is formed of seven entire and "patent Dunstable," that it consists of n split straws. This last manufacture has been eed about half a century. The splitting of the e effected by the machine exhibited.—R. E.]

YSE & SONS, 75 Wood Street—Manufacturers.

st bonnets of finest quality, produced from wheat- daited and made up by the hand. ; fancy. Alboni edge; patent rice, fancy split, em- d Tuscan edge.

st bonnets of fancy horse-hair and straw; black— ur, blonde, and straw; white—horse-hair, blonde, aw; blue—horse-hair and blonde; white—horse- d blonde; goffered—horse-hair and straw-plait. terial made by the loom, and sewn into bonnets and.

orn bonnets made of material produced in Italy. f British manufacture.

12 WELCH & SONS, 44 Gutter Lane, Cheapside— Inventors and Manufacturers.

1. Staple article, wheat straw.
2. Straw pipes as prepared for plaiters' use.
3. Straw splitters and splittings.
4. Specimens of straw plaits.
5. Goffered split straw bonnet.
6. Fine patent bonnet in fancy design.
7. The original split straw bonnet, consisting of 140 yards of plait, which required 292,320 operations in plait- ing during seven weeks, and took ten days in sewing.
8. Split straw bonnet with goffered design.
9. British Italian split straw bonnet.
10. Fine patent fancy bonnet.
11. Mourning fancy straw bonnet.
12. Fancy straw exhibition edge.
13. Child's rice patent bonnet.
- 14—17. New lace fancy bonnets.
- 18—23. Crinoline and lace fancy bonnets.
- 24, 25. Crinoline fancy bonnets.
26. Leghorn and lace fancy bonnet.
27. Tuscan and lace bonnet.
- 28—30. Girls' fancy hats.
31. Girl's gipsy bonnet.
- 32, 33. Boys' straw hats.
34. Infant's rice straw hat.

13 ALLAN, JAMES, 158 Cheapside—Manufacturer and Designer.

Split straw bonnet; design formed by hand. White Italian chip; prepared and manufactured in England, Hair and chenille—English. Goffered crinoline and straw; English. Crinoline and cordonnet; design formed by hand.

Bedford straw. Goffered straw. Rice straw. Dun- stable straw. Choice specimen of whole straw, plaited by an old woman 80 years of age.

Embroidered crape bonnet. Boy's rice straw hat. Young lady's hat. Tuscan hat, with painted satin trimming.

14 SPURDEN, WOOLLEY, SANDERS, & Co., 42 Friday Street—Manufacturers.

Bonnet, exhibited for colour, design, and execution. Bonnet, made of English split-straw plait, exhibited for manufacture and workmanship. Made by hand labour; it occupied 48 hours in making; and, though containing 90 yards of plait, is very light.

Bonnet, made of English plait, showing the inner side of the straw.

15 WOODHOUSE & LUCKMAN, 33 Wood Street, Cheapside— Designers and Manufacturers.

Bonnets, manufactured from the English willow-tree, exhibited on account of their lightness and moderate cost. The crystal bonnet.

16 WINGRAVE & SONS, 62 Wood Street, and at St. Albans —Manufacturers.

- Variety of bonnets and hats.
- Whole straw bonnet.
- Split straw hat double and single.
- Inverted straw hat, commonly called rice.
- White and coloured willow hats.
- Straw and willow hats, mixed.
- White willow and palmetto leaf hats.
- Palmetto leaf and straw hat, mixed.
- Double split straw hat.
- Tuscan straw hat.
- Palmetto leaf matting.
- Palmetto leaf and straw hassock.
- Palmetto leaf ladies' work-basket.

[A variety of different materials have been employed at different times for the manufacture of bonnets and hats. Wheat straw, grown in different localities, possesses, different characteristic qualities, which render it adapted for the finer or for the coarser descriptions of straw-plait

manufactures. The inversion of the straw gives to the plait a peculiar appearance, which has commonly led to the opinion that a different material has been employed. The palmetto leaf, and the willow hats and bonnets, exhibit some recent applications of new materials for this purpose.—R. E.]

16A LONG, GEORGE, *Loudwater, Wycomb, Bucks*—
Inventor, Designer, and Manufacturer.

Hats and bonnets made upon a lace-pillow—1. Straw plait and silk. 2. Horse-hair. 3. Manilla hemp. 4. Twisted grass. 5. Straw and silk. Designs registered by the exhibitor.

17 HOMAN & Co., 39 & 40 *Chiswell Street, Finsbury*—
Manufacturers.

Printed regatta and other shirts; flannel vests; braces; purses; riding belts; garters, &c.

18 PHILLPOTTS, MARY ANNE, 37 *North Audley Street*—
Proprietor.

Figure of a lady in full court dress, in the reign of Her Majesty Queen Victoria, 1851.

19 PATERSON, J., *Wood Street, Cheapside*—Manufacturer.

Fancy cravats. Black satin stocks. Improved braces, belts, collars. Shirt front, plaited in the loom.

20 NEVILL, ALFRED, & Co., 121 *Wood Street, Cheapside*—
Producers.

A piece of Irish linen made from the finest flax. A shirt, shirt-front, and collars, made from the above piece of linen. Richly embroidered neck-tie.

21 CAPPER & WATERS, 26 *Regent Street, St. James's*—
Inventors and Manufacturers.

Twelve shirts, all differing in form, including registered inventions, and of varied substances, in linen, cotton, wool, and silk, viz. corazza, giubba, frock, hunting, Canadian; tourist sottanello; opera, embroidered; court, new form of frill; fatigue, elastic transpirante; Carlisle jacket; sottanello, single and double breast. Dressing gown, with trousers à la Turque. Detached shirt-fronts and collars, various.

22 ABLETT & WHEELER, 234 *Regent Street, and*
23 *Poultry*—Manufacturers.

Shirt of peculiar construction, without buttons. Child's jacket, pair of gaiters, and pair of gloves, exhibiting specimens of English embroidery.

23 REID, W., 51 *Conduit Street, Hanover Square*—

Inventor and Manufacturer.

The registered "sans-pli" shirt.

24 BRIE, JOSEPH, & Co., 189 *Regent Street*—
Producers and Designers.

Shirt fronts, including the newest patterns, in runnings, stitchings, veinings, and embroidery.

Shirts of an improved cut.

Embroidered handkerchiefs and flannel waistcoats.

25 MARSHALL, WILLIAM, 80 *Regent Street*—
Inventor and Manufacturer.

Registered improved shaped shirt, cut to fit the shoulders, &c.

26 POWELL, S., 52 *Regent Street*—Inventor and
Patentee.

Bisunique, or reversible garments, coats, vests, trousers, paletots, &c. The royal bisunique jacket, constructed of cloth which has two distinct faces of contrasting colours, in one fabric.

27 BARNES, THOS. & GEO., 9 *New Court, Goswell Street*—
Designers and Manufacturers.

Registered buckskin braces, of new and old designs; exhibited as specimens of execution; the improvement consists, partly, in the attachment of the vulcanized India-rubber spring by adhesion.

Flexible razor strops.

28 HEMMING, EDWARD, 6 *Piccadilly*—Designer.

A model shirt, intended, by its peculiar shape, to adjust itself to the body and neck. Made of fine Manchester long cloth and Irish linen.

29 SMITH, JOHN E., 3 *Lawrence Lane*—Manufacturer.

Shirt, formed without the aid of seams or gathers.

Specimen of Moravian needlework, illustrating the growth of flax; with the rose, shamrock, and thistle.

30 PORTER, THOMAS, 94 *Strand*—Manufacturer.

Specimen of a shirt cut on mathematical principles.

31 WAGNER, LOUISA & MARIAN, 35 *Doddington Grove*—
Designers and Manufacturers.

Plume of registered feathers and rosettes, in coloured mohair silk. Hand-netted silk handkerchief head-dresses; the same in floss silk, with lappets.

Fancy bracelets, of various designs, produced by hand from common braid. Fancy silk (all hand-netted) dress caps. Hand-netted Florence-pattern berthe, and dress sleeves made of plain silk twist and fancy floss silk. Neck-tie of same material, *en suite*. Dress, opera, and ball caps, assorted, of gold, silver, and chenille. English mohair crocheted morning, smoking, or reading caps.

32 ATLOFF, JOHN GEORGE, 69 *New Bond Street*—
Inventor.

Ladies' shoes of various materials.

Silk slippers, embroidered in gold, with the Queen's arms.

Ladies' silk boots. Ladies' half boots.

33 WEATHERHEAD, HENRY, 27 *Panton Street,*
Haymarket—Manufacturer.

Silk and India-rubber braces. Gros-de-Naples belt, with silk and India-rubber springs.

34 NICOLL, BENJAMIN, 42 *Regent Circus, and 46*
Lombard Street—Manufacturer.

Shirt of a new material, in silk. Shirt of Irish linen. Hunting shirt.

35 CHRISTYS, 35 *Gracechurch Street, London, and Stock-*
port, near Manchester—Hat Manufacturers and
Hatters' Furriers.

Specimens, illustrating the manufacture of hats, consisting of materials in the raw state, prepared for use, and in the different stages of manufacture, up to the finished state.

Beaver.—Beaver skin, dark colour; the same with the coarse hair taken off. Beaver skins, silvery colour; the same with the coarse hair taken off one side, with the fur partly cut off by the cutting machine. Musquash skin; the same with coarse hair taken off. The preceding are the produce of the Hudson's Bay Company's territories.

Newtrian skin, as imported from Buenos Ayres; the same with the coarse hair taken off. Vicuna skin from the Andes, as imported from Lima. Rabbit skins—home. Hare skins—home and Turkish.

Machine for cutting the fur off the skin, by passing it stretched through rollers over a sharp blade, against which it is struck by the fall of an iron beam worked by a crank, and so adjusted as to cut off the fur without cutting through the felt.

Materials as prepared for use.—Beaver furs as cut from the skin, and as prepared for use, the coarse hairs being taken out by machinery. The coarse hairs as taken out. Newtria, musquash, hare, and rabbit furs, natural and prepared for use.

Wools—English, Spanish, Saxony, Australian, and Vicuna wools; the same washed and carded.

The manufacture of felt hats is illustrated in the following specimens:—The fur for the body of a hat before felting as first formed by the workman with the vibration of a bowstring; in the first stage of felting; and completely felted. The hat body stiffened with waterproof composition prepared from materials. The beaver fur as prepared for putting on the body to form the nap, and mixed with cotton to prevent the outside covering of the beaver from felting together instead of adhering to the body; the same, in the first stage of sticking. The hat after the nap is felted on, by rolling in boiling water, and showing the vegetable substance (the cotton), separating from the animal substance (the beaver), which has adhered to the body. The hat in the cone completely napped and cleared from the cotton by a process of combing. The hat undyed after shearing by machinery and blocking into form. The hat dyed with materials. The hat in completed state, after being blocked by steam, finished, trimmed, and shaped for wear. Specimens of hats of felted fur in the various materials, forms, and colours, as made for home and foreign trade.

The manufacture of silk hats is shown in the following specimens:—The silk in the raw as imported, and as dyed. The velvet plush as woven, and as finished for use. The foundation or body of the hat, showing the arrangements at the top for ventilation, and at the brim, to prevent the moisture from the head passing through to the silk on the outside. The hat in the completed state.

Hats of old manufacture; illustrating the change of shape and improvements in make, during the past sixty years, arranged in decennial periods. The cocked hat bears the stamp of the government (internal) duty of 3s. 6d. then levied on hats of home manufacture above the value of 18s.

Tools used in the manufacture of hats.

The manufacture of silk hats has attained a condition of vast importance. The material employed to imitate the fur is a silk plush, manufactured to a large extent in England for the express purpose. It is estimated that about 250,000 dozen silk hats are made in London, Manchester, Liverpool, Birmingham, and Glasgow. The annual value of silk hats produced in England is estimated at about 900,000l.]

36 FORD, RICHARD, 185 Strand—Manufacturer.

Shirt, exhibited for plain needlework, and improved form.

37 GLENNY, CHARLES, 33 Lombard Street, City—Proprietor.

Cotton hosiery. Ladies' stockings, fine, four threads, six threads heels and feet, weighing only seven ounces. Medium quality, stout, seven threads, nine thread heels and feet. Gentlemen's fine half hose. Manufactured at Balbriggan, in Ireland, where the cotton undergoes a preparation which imparts to it softness and elasticity.

38 SANDLAND & CRANE, 55 Quadrant, Regent Street—Inventors and Makers.

Belt drawers, exhibited on a statuette. Shirt exhibited on the same statuette.

39 BRADSHAW, G., 103 Bishopsgate Street Within, and 25 High Street, Islington—Inventor and Patentee.

Patent fastening, as applied to gentlemen's collars of various shapes; a simple, yet speedy mode of fastening, expending strings, loops, and other objectionable contrivances.

The same applied to gentlemen's fronts and stocks, or close-round cravats.

Gentlemen's anti-rheumatic belt and drawers. This fastening regulates the size, gives support to the wearer, and is of advantage in hunting, riding, or rowing.

Waistcoat with the fastening, which keeps the garment in an easy and graceful position. The fastening can be taken out while the waistcoat is being re-dressed.

40 JOUBERT, CAROLINE, 8 Mabbux Street, Hanover Square—Inventor and Manufacturer.

Self-adjusting white watered corset, with a spring busk and improved lacing.

Elastic corset belt, for invalids; made of India-rubber tissue, of French manufacture.

40A ROBERTS, GEORGE, 183 Oxford Street—Manufacturer.

Corset made in 21 pieces, all cut "on the cross," upon the expanding principle, with instant relieving backs; corset, made to fasten in the front with patent spring clasp, and gauze elastic sides; corset, of the most simple construction, with patent spring backs, no lacing being required.

41 PIPER, THOMAS FOOT, 4 Bishopsgate Street Without—Inventor and Manufacturer.

Mechanical spring-corset, silk bodice, simple bodice, and young ladies' scapular or contructor.

42 MARTIN, EMMA & ELIZ. H., 504 Oxford Street—Designers and Manufacturers.

Elastic bodice of white satin. The elasticity is produced by the introduction of vulcanized India-rubber in the back and sides, to render them expansive. Exhibited on an expanding bust, to show the utility of this invention for free respiration.

Riding bodice, of similar materials. The simplicity of the fastening, the absence of whalebone and lacing, and the shape, distinguish the elastic bodice from stays.

Abdominal belt, peculiar in its softness and elasticity.

43 SYKES, MARY EL., 280 Regent Street—Inventor and Manufacturer.

Corset, weighing only five ounces: the elastic portion made by hand; the mode of fastening and unfastening is new.

44 DEVY, ELIZA, 73 Grosvenor Street—Inventor and Manufacturer.

New registered riding stays. Nursing stays. Dress stays, and stays of the usual kind.

45 CAPPER, JOHN & SON, 69 Grosvenor Street—Part Inventors and Makers.

Registered folding bassinets or cradles, intended to facilitate the packing and carriage of infants' bedding.

Infant's basket, with its contents. Infant's clothing, assorted. Night-cap and dress. All trimmed with Irish lace.

46 THOMAS, W., & BROTHERS, 128 & 129 Cheryside—Manufacturers.

Boots and shoes made without stitches, pegs, nails, or rivets; with heels on an improved principle. Boots with leather soles; with gutta percha soles; and with gutta percha soles with leather edges, which prevent the gutta percha from spreading and turning up at the edges. Boots with gutta percha waist and leather sole; boots with leather waist and gutta percha sole.

Improved heels; the same, attached to soles of various sorts. Boots and shoes, with elastic sides, made by sewing pieces of India-rubber to the upper leather and then to the sole.

Boots for persons with tender feet, or invalids, with the inner sole of spongy India-rubber. Spongy shoes. Ladies' boots, with Fisher's patent elastic spring backs. Drawing-room slippers, made without seam.

Stays, made without seams, known as "Paris woven." Silk. Thread. Patent woven elastic corset, having elastic threads introduced into the fabric. Webbing or tape for Venetian blinds, safety carpet and leathern bags. All patented.

46A SHREEVE, Mrs., *Charing Cross*—Inventor.
Elastic knitted corset.

48 JOHNSON & Co., 113 *Regent Street*.—Patentees.

Patent ventilating hats. The principle of ventilating these hats being to admit the air through a series of channels cut in thin cork, which is fastened to the leather lining, and a valve fixed in the top of the crown, which may be opened and shut at pleasure to allow the perspiration to escape.

Patent valves. Patent leather. Full-dress court hats. Royal state livery hats. Ladies' riding hats, &c.

Field-marshal's, general's, and colonel's full-dress regulation cocked hats.

Admiral's, captain's, and lieutenant's full-dress regulation cocked hats.

[The general principles upon which a hat is made, are of a most imperfect description as far as relates to the comfort and probably, in a degree, to the health of the wearer. It has been conjectured that one among other causes of premature baldness, is the deficient ventilation, and the undue contraction of the rim of most hats. In the present instance an attempt to obviate these defects is exhibited.]

49 GEARY, NICHOLAS, 61 *St. James's Street*—
Inventor and Manufacturer.

Improved and elastic corsets, for full-dress and other purposes.

Elastic supporting-belts.

Spinal supporting-corset, with invisible spring-crutch. Invalids' self-acting corset, with a plan for instantaneously unfastening the corset without unlacing (in case of sudden indisposition). Perforated gossamer corset, for hot climates, &c.

Hydropathic belt, constructed for equal pressure and support of the "umschlag," or compress, when worn round the body.

50 DANDO, SONS, & Co., 42, 43, 44 *Cheapside*—
Manufacturers.

Specimens of a new description of patent light network velvet hats, in various stages of manufacture. The foundation, or body, is made of net, which allows free ventilation; it weighs one ounce and a half.

51 WHITE, WILLIAM, 68 *Cheapside*—Manufacturer.
Ventilating velvet-nap hats, and zephyr hats.

51A FELIX, EDWARD & Co., 10 *Cheapside*—
Manufacturers.

Hats of a peculiar construction, designed to render them elastic, waterproof, and ventilating.

52 ASHTON, JOSEPH, & SONS, 55 *Cornwall Road*—
Manufacturers and Inventors.

Black and drab patent elastic beaver hat on beaver body.

Beaver felt hat, natural colour of the wool.

Black beaver felt hat; beaver body.

Light elastic velvet hat, on a gossamer body; French plush.

Light elastic hat, on a stuff body, French plush.

53 ASHMEAD & TYLER, J. T., 7 *Mount Street, Berkeley Square*—Inventors and Manufacturers.

Patent folding hat, without springs. Soft velvet folding hat. Minerva hunting cap.

54 MELTON, HENRY, 194 *Regent Street*—Manufacturer.

Gentleman's hat of the ordinary size, made of English plush. The weight does not exceed three ounces.

The plush was produced from the manufactory of Stephen Walters and Son, Finsbury.

Lady's riding-hat, made of English plush, and of new design.

55 SMITH, GEORGE, & Co., *Union Hall, Union Street, Borough*—Inventors and Manufacturers.

Light silk hat. Silk hat, the body of which is made on a new principle. Silk hat on soft felt body. Hat of a new shape. Ladies' riding hat, new shape. A gossamer body japanned by means of a new process; intended for sailors or others exposed to hot or cold climates.

56 DIETRICH, FREDERICK AUGUSTE, 2 *Bennett Street, Blackfriars Road*—Inventor and Manufacturer.

Patent elastic hat lining; invented to prevent pressure, to retain a firm hold, and permit free ventilation.

Newly-invented silk hat, the body of which, being composed of horsehair, is porous and elastic, ventilating and flexible.

New military cocked hat, made from the same material.

Gentlemen's court hat, and ladies' riding hat, made from the same material.

57 BARBER, SAMUEL, *Brentford*—Inventor and
Manufacturer.

French silk hat, with body of Manilla grass, exhibited for novelty, durability, ventilation, waterproof, and other qualities.

58 STAINBURN & BAUGH, *Gresham Street*—
Manufacturers.

Specimens of felt materials: English rabbit's fur, 8 parts; Saxony lamb's wool, 3 parts; Llama, or red wool, 1 part; weighing together 1½ oz.

The same, formed into a hollow cone by a process called boring; the mixture and coherence of the fibre thus produced is the first stage in the felting process.

A felt body (being the cone required for a hat), worked to the proper size and texture; heat, moisture, pressure, and friction being the means by which it is perfected.

A felt body, waterproof, stiffened with resinous gums dissolved in spirit.

A beaver cover, which, when worked into a stiffened body, is called a hood.

The beaver hood, ready for dyeing.

A dyed or black hood, which, softened by a jet of steam, is drawn upon a block, and finished to the precise size and style required.

Flexible felt hats.—Silk hat, made from English plush.

Felt body prepared for covering. Silk cover.

Silk hat complete, new style.

59 ZOZ, LAMEN, 84 *Long Acre*—Manufacturer.

Registered Korychlamyd, or helmet cap. Patent aquatic naval life-cap. Folding college cap. Racing, opera, and military caps.

60 GROSJEAN, FREDERICK, 109 *Regent Street*—Inventor.

Invention for producing a red stripe on regimental trousers, without the usual process of sewing one piece of cloth on another.

Plan for securing money deposited in the pockets of trousers.

Method of instantaneously detaching the skirt from the body of a lady's habit, by a spring fastening.

Invention for excluding the cold air from the legs and feet of travellers.

61 GARRARD, ROBERT & JOHN, *Loman Street, Southwark*—
Manufacturers.

Japanned leather peaks for caps. Registered japanned felt hat. Fireman's japanned leather helmet. Leather straps, cockades, &c. Models of japanned felt hats, of different shapes.

62 THOMPSON & SON, 11 Conduit Street—Designers and Manufacturers.

Morning jackets. Scarlet hunting coat. Cricket jacket and trousers. Waistcoats. Ladies' polka braided.—All of elastic webbing, of British manufacture.

63 WALKER, BARR, & Co., 346 Strand—Inventors.

Registered waterproof alpaca over-coat and case; the seams in back and front of the arms are dispensed with: it is light in weight, and can be carried in a coat pocket.

64 CODY, JOHN, 6 Marshall Street—Inventor.

The "monomeroskiton," or single-piece coat; a fine dress coat of British manufacture, constructed from one piece of cloth.

64A BRAUN, LOUIS, 65 Wood Street, Cheapside—Manufacturer.

Fancy caps of various sizes.

65 KISCH, SIMON A., 250 Regent Street—Inventor.

Registered auto-crematic gown, with elastic springs and peculiar configuration of the neck, which prevent it from falling off the shoulders.

Cassock waistcoat, answering the purpose of a waistcoat and short cassock.

66 BRAUND, JOHN, 26 Mount Street, Grosvenor Square—Producer.

Travelling cap, with transparent peak, to protect the eyes from wind, dust, &c., without obstructing the vision. Manufactured by Messrs. Christy and Co., Gracechurch Street.

67 LYONS, J., 12 & 13 Artillery Place, Woolrich—Producer.

Military caps.

68 PRICE, WILLIAM, 115 Chancery Lane—Designer and Manufacturer.

Flexible spring gowns; law, clerical, and civic.

69 CUTLER, WILLIAM, 25 St. James's Street—Inventor.

The "duplexa," or morning and evening coat; intended to answer the purpose of two garments of opposite character.

70 BAIN, WILLIAM, 141 High Holborn—Inventor.

Floatable life-preserving cape cloak.

71 SMITH & GIBBS, Wellichborough, Northamptonshire, and 84 Cheapside—Inventors and Manufacturers.

Cloth and leather gaiters, with patent fastenings, &c.

Patent Euknemida, in cloth and leather, various. A new mode of fastening, adapted to various articles, as stays, ladies' dresses, &c.

Cambridge over-coat waterproof in a new style.

National cape and travelling wrapper. Registered for novelty, shape, and reversibility.

Hats new in shape and material, called "Novum Pileum."

Silk elastic webbing and sandalings; exhibited for colour and quality.

Youths' leggins, new cut and coloured material.

72 GATES, LACRA CHARLOTTE, Upper Eaton St., Piccadilly—Inventor.

Model of married lady's dress, with improvements which can be applied to dresses already made.

73 HURLEY, DANIEL, 10 Hare Court, Aldersgate Street—Inventor and Manufacturer.

Lady's safety pocket, which cannot be picked or cut from the person without the wearer's knowledge.

Model of a pair of trousers, so constructed that they may be worn three different ways, either as a French bottom, or gaiters attached, or plain bottom, with improvements.

74 CAHAN, EDWARD, 371 Strand—Designer.

The "Anaxyridian" trousers. The peculiarity consists in the cut, which is so arranged that they remain as a fixture to the heel without straps; and dispense with braces.

75 SHINTON, R., 29 Spencer Street, St. George's East.

A pocket protector.

76 BETHEL, WARE, & Co., 62 Aldermanbury—Manufacturers.

Camellia in vase, leaves of Luton plait. Flower of chip imported from Italy. Vase of variegated Luton plaits.

Young lady's hat, fancy Devon plait.

Lady's riding hat, patent Luton plait.

Boy's hat, fine Devon plait.

Infant's hat, patent Luton plait.

Gentleman's hat, broad Luton plait.

Ladies' bonnets, including patent Luton plait in wreaths; convolvulus leaves of Luton plait; flower and insertion, Italian chip. Beetles' wings, coloured Luton plait. Primroses, leaves Luton plait, flowers Italian chip. Italian chip in wreaths. Whole Dunstable plait. Plain Luton plait. Plain-sewn chip; material imported from Italy. Broad Luton plait.

[The plait, technically called "Luton plait," is made in imitation of the "whole Dunstable" plait. It consists of double seven straws, and is a coarser kind of material than the Dunstable. Its application to the manufacture of ornamental articles is illustrated in the articles exhibited. It deserves notice, that of late an increase in the import of unmanufactured material (straw, &c.) from Italy has taken place, and has been accompanied by a corresponding decrease in that of manufactured articles in plait. The plaiting of foreign material is carried on to a large extent in this country.]

77 ROBERTS, EDWARD BOYD, 239 Regent Street, and 32 Moorgate, City.

The beaver (*Castor fiber*), applied to articles of clothing.

78 DENT, ALLCROFT, & Co., 97 Wood Street—Manufacturers.

An assortment of ladies' and gentlemen's gloves, of various materials, colours and styles. Ladies' drab kid gloves, sewn, and fancy colours, &c.; pointed, fancy Florentine; and black kid, with fancy sewings.

Gentlemen's drab and coloured kid gloves, Dundee sewn; black calf gloves, tan sheep gloves, for driving.

Ladies' and gentlemen's white, drab, and real fawn gloves.

Ladies' and gentlemen's coloured kid gloves, lined chamois and pink silk, and a variety of other gloves.

79 THRESHER & GLENNY, 152 Strand—Manufacturers.

Thresher's India gauze waistcoats. Silk and thread hosiery. Silk and lambs'-wool hosiery. Improved spun-silk hosiery. Specimens of the respective qualities of silk hosiery. Gauze spun-silk waistcoats, exhibited as specimens of spun silk for under clothing. Gauze merino waistcoats. Hand-spun silk hosiery, exhibited as a specimen of hosiery, made from waste silk.

80 BALI, WILLIAM Y., & Co., 32 Wood Street, Cheapside—Manufacturers.

Kid leather gloves, cut and made in England; manufactured from French dressed kid skins.

A glove in its unfinished state.

81 LART, JOHN, & SON, 116 Wood Street, Cheapside, and Rutland Street, Nottingham—Inventors and Manufacturers.

Ladies' Lisle thread hose, in plain and open work, of new patterns; manufactured at Nottingham. Ladies' silk jacket, trimmed, woven and fashioned in the stocking frame; manufactured at Nottingham. Gentlemen's cotton and silk pantaloons drawers, with elastic washable gussets; and various specimens of gentlemen's cotton and spun silk half hose, and children's socks, and gentlemen's merino, Cashmere, and spun silk vests.

82 FOWNES BROTHERS, 41 Cheapside—Manufacturers.

Ladies' gloves, manufactured from kid-skins, produced in Ireland and dressed in England.

Gloves, manufactured from French-dressed kid-skins. Taffety silk, union silk, velvet, and Lisle thread gloves; beaver, cashmere, goat, and vicuna wool gloves.

Kid-glove in its various stages of manufacture.

83 MACDOUGALL, DONALD, Inverness, Scotland—Manufacturer.

Short pieces of loom-wove tweeds, adapted for deer-stalking and grouse shooting, by their peculiar colours, the natural hues of the rocks and mairs, the haunts of deer and grouse; also for fishing.

A piece of loom-made tweed, from Shetland wool, soft and elastic.

Fine loom-made tartans, for dresses, showing the correct sets of clan patterns. Loom-made plaids.

Highland carpets, called "The Royal" (new design), made from first-class Sutherland Cheviot wool. Pieces of home-manufactured tweed, one made at Tongue, in Sutherland, dyed from heather and crotal (a lichen), the colours rare; the other made at Skye.

Piece of home-manufactured tweed, made at Ord, in Ross-shire, natural colours of deer-wool, brown and white; and a piece made at Avoch in Ross-shire.

Pieces of home-spun tartans, from Perthshire.

Plaid manufactured at St. Kilda, and a small sample of tweed; exhibited as curiosities, illustrating the industry of the natives of the most remote of the British islands; the yarn is spun by the distaff, and woven in a native-made loom.

Home-made plaids: specimens of home-knitted stockings and socks, dyed from heather, soot, crotal (a lichen), alder-bark, &c.

Home-made gloves, some of wool, and one pair of the wool of the white mountain hare; exhibited because the material is unusual.

Knitted shawl made in the island of Lewis, and another from Sutherland. A woman's shoulder plaid manufactured in the year 1768, showing the state of industry in Lewis eighty-three years ago. Towel made from flax, grown, spun, and woven in that island.

Sample piece of linsey-woolsey, made of Cheviot wool and bog cotton (*Eriophorum vaginatum*), the latter now first used in manufactures.

Sample of tweed made of vicuna wool, and underdresses of the same material.

Home-made plaid blankets, from Ross-shire and Sutherland.

Highland brooches, made of carved bog-oak, deer's teeth, and Cairngorms.

Highland ornaments: a purse, horn, skeindhu, and drinking cup.

Small quantities of yarn, showing the following native dyes, from crotal (a lichen), colours, drab and brown heather, yellow, and a specimen of green; cudbear, (a lichen), colours, drab and brown, and a lighter shade alder-bark and water-lily root (*Nymphet alba* or *Nuphar lutea*) black; soot, dark brown; rhubarb, buff.

Specimens of rock crystal, or "Cairngorm," from the mountain of that name in Inverness-shire. Native dye-stuffs; water-lily root, alder-bark, heather, cudbear plant (a lichen), and crotal (a lichen). Sample of bog-cotton (*Eriophorum vaginatum*).

[The white mountain hare, mentioned by the exhibitor, is the *Lepus variabilis*, a distinct species from the common hare, and an inhabitant of the mountainous districts only in Britain, though in Ireland a variety of it takes the place of the common hare. It is identical with the hare of Norway.

The cotton-grasses, or bog-cotton, are species of sedge of the genus *Eriophorum*. The *E. vaginatum*, single-headed cotton-grass, and the *E. polystachion*, a many-headed species, are the most common, and are abundant in all the bogs throughout the British Islands. There are other kinds also, but rarer. Their spikes are invested with long cottony hairs, beautifully white. Many attempts have been made to employ this substance in manufactures, for which it seems well adapted, but (until that now exhibited) without success. The material is very abundant, especially in Scotland and Ireland.—E. F.]

84 HOLMES, JAMES, & Co., 171 Regent Street—Inventors and Manufacturers.

Cashmere quilted full-dress or opera cloak, composed of the finest white wool worked into small diamond-shaped cells, with 1,200 gold pendants of various sizes, one being placed at the point of each alternate cell. The inside or lining is of white satin, quilted, with emblematical wreath of the United Kingdom. In the centre is a figure of Britannia, quilted, with wreath around. The hood is in keeping with the cloak, quilted, with device in gold work.

Registered shawl cloak, woven in one piece, with a hood of same material, designed and manufactured by the exhibitors.

Patterns of camelion cloth, a new material, with two distinct colours.

Cloak, made of the camelion cloth; registered by the exhibitors.

85 WIGHAM & Co., Edinburgh—Manufacturers.

Tartan plaids, or long shawls of various Highland clans, combined and separate.

86 SOLOMON, SARAH, 52 York Road, Lambeth—Designer and Manufacturer.

A lady's English costume ball-dress, embroidered with gold and silk. The costume fashioned, made up, and embroidered by the exhibitor alone.

87 GWATKIN, EMILY & ELIZA, 37 Westminster Bridge Road—Designers.

Bonnet made from cotton, worked into form by crochet, and brought into finished shape by registered method.

Bonnet made of satin, of new design and workmanship; formed from 300 separate pieces.

88 OLIVER, B. S., Nottingham—Manufacturer and Importer.

Varieties of pasteboard boxes for containing lace, hosiery, gloves, and fancy articles.

89 MILES, SIMEON, 89 Bunhill Row—Producer.

Variety of Berlin wool work.

90 SAXTON, ALFRED, Nottingham—Manufacturer.

Ladies' mitts, cuffs, and gloves, embroidered and made of silk; neck-ties and silk shawls, Jacquard patterns, &c.

"Antimacassar" toilet covers and tray-covers, centred pattern, Jacquard.

91 SHAW, JOHN, Radford, near Nottingham—Manufacturer.

Berlin wool vest, made from the stocking frame, with the Jacquard.

Piece for window curtains from the stocking frame, and "antimacassar" from the stocking frame (cotton).

92 **THURMAN, PIGGOTT, & Co.,** *Friar Lane, Nottingham*—Manufacturers and Inventors.

Hosiery goods, manufactured under Thurman's patent, from silk.

93 **GALLOWAY & SONS,** *Nottingham*—Manufacturers.
A variety of silk gloves.

94 **FURLEY, JOHN,** *Nottingham*—Manufacturer.

Ladies' and gentlemen's merino vests, in wool and mixed materials.

96 **HOLLINS, S.,** *Nottingham*—Manufacturer.

Lace goods. Machine-made cotton Brussels nets and laces, figured by the needle. Various hosiery goods.

97 **MUSSON, R. & J.,** *Nottingham*—Manufacturers.

Silk gloves. Lisle thread, spun silk, plated silk, and fleecy lined gloves.

Patent Brayama gloves; a new material, fleecy inside. Embroidered gloves.

98 **CARVER & GILBERT,** *Nottingham*—Proprietors and Manufacturers.

Cotton, Novi silk, spun silk, merino and Cashmere gentlemen's and ladies' vests.

99 **HURST & SONS,** *Nottingham*—Manufacturers.

Brown and white, plain, open-work, and embossed cotton hose and half-hose; cotton and spun silk drawers and vests.

100 **ALLEN & SOLLY,** *Nottingham and London*—Manufacturers.

Samples of hosiery; with samples intended to show the progress of cotton-spinning for the hosiery trade from an early period to the present time. Specimens of cotton, lisle thread, linen thread, spun-silk, and merino hosiery.

101 **MORLEY, J. & R.,** *London and Nottingham*—Manufacturers.

Specimens of white cotton stockings for ladies.

White Lisle thread stockings.

Kalbriggan stockings.

Silk stockings with cotton tops.

Silk stockings.

Silk stockings, lace open work.

Kalbriggan stockings, lace open work.

Children's spun silk Braganza gloves, fleeced.

Children's coloured silk gloves.

Fancy coloured silk gloves for ladies.

Children's white cotton stockings.

Children's brown cotton Derby ribbed socks.

Children's white Lisle thread socks.

Children's white Lisle thread socks, lace open work.

Children's silk socks, lace open work.

Cotton half-hose for gentlemen.

Kalbriggan half-hose.

Kalbriggan half-hose, Derby-ribbed.

Cotton half-hose, with spun silk double feet (curious).

Cotton half-hose, with fancy merino feet.

Derby-ribbed cotton half-hose, with fancy merino feet.

Cotton half-hose, with real beaver feet (superior).

Derby-ribbed cotton half-hose, with real beaver feet (superior).

Fancy merino half-hose.

Fancy merino Derby-ribbed half-hose.

Spun silk shirts for gentlemen.

Silk shirts.

Spun silk Braganza shirts, fleeced.

102 **TRESS & Co.,** *Blackfriars Road*—Manufacturers.

Ladies' habit hat "Queen's," original design, composed of silk plush and finished with satin, under side trimmed with plush, band and plumes, on fine cotton body, ventilated, light and elastic.

Ladies' habit hat "Princess," original design.

Ladies' habit hat "Duchess," original design, trimmed with a fine brush feather.

Ladies' habit hat "Princess," novel colour, composed of silver-grey silk plush, finished with satin under side, and trimmed.

New design, gentlemen's drab hats composed of fine woollen cover, on cotton body, very light and elastic, and well ventilated, suitable for hot weather and climates, being a "non-conductor" of heat.

Gentleman's hat, new design, composed of silk plush, improved finish, cloth underside, very light and elastic. The same, with original design.

103 **BERNI & MELLIARD,** *56 Great Guildford Street, Southwark, and 203 Strand*—Manufacturers.

Military and court hats, new styles. Napless beavers.

Ladies' black napless beaver riding hats, exhibited for their texture, and style.

Silk plush hats, with elastic felt and other bodies.

Folding opera hat, made of velvet.

104 **EVELEIGH & SON,** *Manchester*—Manufacturers.

Various kinds of hats, in silk, felt, and cork.

105 **SIMMONDS & WOODMAN,** *Oldham*—Manufacturers.

Beaver hatting materials, from the skin to the hat, complete.

Gentleman's black beaver, drab, and napless hats, trimmed complete.

Black silk hats, and patent reflectors.

Ladies' white and drab beaver, napless, full trimmed.

Child's white and drab beaver, napless.

106 **STANDISH, ANNE,** *Kidderminster*—Lace-worker and Producer.

Court dress of needle-work.

107 **HILL, LUKE MARSHALL,** *Whitby*—Inventor.

"Unique habit," cut out in one piece, and having no seam on the top of the shoulder, the outside of the arm, or down the middle of the back.

108 **WATTS, WILLIAM,** *Banbury*—Inventor.

Complete coat, trousers, and gaiters, in one piece, without any seam.

109 **WALSH & Co.,** *Bristol*—Producers.

Embroidered over-coat.

110 **GOULDING, JOHNSON,** *Beverley*—Inventor and Manufacturer.

Novel full-dress coat, the body of which is cut out of one piece of cloth, with two seams instead of nine.

110A **LEE, J.**—Producer.

Quilted coat, and instrument for quilting.

111 **HARRIS & TOMKINS,** *Abingdon, Berks*—Manufacturers.

Two worked frocks for agricultural labourers, in white duck; the designs by Thomas Watson. One worked by Hannah Stimpson, a cottager of Radley, Berks; on the sides are the national emblems, the royal crown, doves bearing olive branches, interworked with mottoes—"Vivat Regina," and "Peace with all the world." The collar and shoulder-straps bear appropriate devices; the wristbands display the royal crown, enclosed in a scroll, interworked with the motto, "Long live our gracious Queen." At the end are the Prince of Wales's feathers. The bosom and sleeves are fancifully gauged, and display the crown, rose, shamrock, thistle, sprigs, &c.

The other worked by Esther Stimpson, sister of the preceding. The side-work represents Industry, with Fame crowning her with a wreath; above are a wheat-sheaf, flowers, &c. The collars contain agricultural implements, encircled with mottoes, "God speed the plough," and

"Success to agriculture." The shoulder-straps show a hive of bees, &c.; the wristbands, oak boughs and acorns; the bosom and sleeves are gauged in the same style.

112 CAULCHER, J. D., *Anstruther Villa, Boundary Road, St. John's Wood*—Inventor.

Life-preserving elastic cork jacket, capable of being worn unobserved under a coat or a mantle; and, in consequence of its pliability, can be worn comfortably whilst rowing a boat, &c.—Registered.

113 DOUDNEY, E., 17 *Old Bond St.*, 25 *Burlington Arcade*, and 49 *Lombard Street*—Inventor and Maker.

The waterproof Irish poplin registered cloak. The application of the waterproofing process to Irish poplin protects it from injury by wet, and renders it suitable for ladies' dresses, for yachting, and exposure to wet and damp.

114 LEWIS & SON, 1 *Quiet Street*, and 1 *John Street, Bath*—Designers.

Over-coat, of novel design and light texture.

115 DINGLEY, W. & S., *Sherborne, Dorset*—Inventors.

A new overcoat, combining a paletot, trousers, and railway wrapper, which may be used or not at pleasure, for walking, driving, or riding; registered as "Dingley's Protector."

115A CROSS, C., & Co., *Corporation Street, Manchester*—Manufacturers.

Articles of clothing made by power-loom.

116 FREY, JOHN LIDDON, *Honiton, Devon*—Inventor and Manufacturer.

Dress coat: the body is cut in one piece, without back, body, under-arm or lappel seams. Round jacket, similarly cut.

Registered measure, called by the inventor the "cardinal point measure and rule," for taking the dimensions of the human figure, and adapted to every variety of shape.

117 GRIFFIN, BENJAMIN, *High Street, Leominster, Herefordshire*—Inventor.

Four arithmetical, geometrical, and self-variable systems of cutting in one book. These systems contain a number of mathematical figures or diagrams, to form certain shapes, for making coats, vests, trousers, and other garments.

118 MCGEE, J. G., & Co., *Belfast*—Manufacturers.

Embroidered vests: the designs are by pupils of the Belfast Government School of Design; and the embroidery the work of poor girls who have been only nine months under the tuition of the exhibitors.

119 SMITH, CHARLOTTE, *Bedford*—Inventress.

Patent symmetrical corsets, enabling the wearer to regulate the pressure of the stay (as may be required) in a simple manner.

Patent "soccopedes elasticus," or elastic silk boots, manufactured by Mr. Longdon, of Derby. The top part is woven all in one piece, and being composed of an extensible material, with elastic ankle-band, it adapts itself to the shape of the leg and foot, without side-springs or lacings, and gives support to the ankle.

120 GALLAWAY, T., 43 *Albion Street, Leeds*—Manufacturer.

Three woven corsets.

121 ODDY, S., *Armley, Leeds*—Manufacturer.

Coloured fine wool shawls, with embroidered corners, and other ornaments.

122 TINSLEY, J., & Co., *Leeds*—Manufacturers.

Improved woven corsets for ladies, without a seam; made of prepared cotton yarn, free from any dressing composition; exhibited for shape, workmanship, and utility.

123 MIDDLEBROOK, T., *Leeds*—Manufacturer.

Military officer's cap and cover. Black silk velvet smoking or carriage cap.

124 HALEY, WILLIAM, *Leeds*—Inventor and Manufacturer.

Protection travelling cap, peculiarly adapted for cold climates.

125 MOLLADY, JOHN, & SONS, *Warwick*—Manufacturers.

Specimens showing the manufacture of a stuff hat, from the raw material through seven different stages to the complete hat.

New design of a lady's embossed felt bonnet, trimmed. Stuff rustics, novel styles; sombrero hats, varied colours; new designs in children's fancy hats, and coloured felt bonnets.

Silk hats, ventilating, cork, and gossamer hats, exhibited for lightness and elasticity.

Light zephyr hat, weight under three ounces. The lightness is attained by the introduction of a new combination of material in the body.

Welsh lady's hat; "Cardiganshire," of improved design.

[By the technical term "stuff hats," is meant the best description of hats made in imitation of beaver. In these hats the fur of various animals is employed, and is applied to a foundation which is rendered waterproof by the application of spirit varnishes. The annual value of stuff hats produced in this country is taken to be about 800,000*l*.]

126 CARRINGTON, SAMUEL & THOMAS, *Stockport*—Manufacturers.

Pearl, drab, and silvery cloth and felt hats, raised nap. Brown nutria, natural colour, felt hat, made of beaver and other furs.

Fawn or buff, and other kinds of felt hats, light and elastic.

Silvery grey and black hats.

Brown felt fishing hat; waterproof, soft, and flexible.

Felt rustics, of various qualities.

Ladies' flexible felt riding hats.

Children's felt hats, natural colours.

126A PEARSON, JOHN, 7 *Gorse Brow, Stockport*—Manufacturer.

White beaver bonnet.

127 TAYLOR & Co., *St. James Street, Rochdale*—Manufacturers.

Specimens of silk plush for hats.

127A LEES, A., *Manchester*—Manufacturer.

Felt, velvet, and alpaca hats. Cloth caps.

128 McRAE, JOHN JAMIESON, *Newark, Notts*—Designer and Inventor.

A triple stay, adapted for use in portions of male attire which require to be made strong.

A waistcoat which can be lengthened or shortened at pleasure, with the triple stay attached, adapted for summer wear.

Finest alpaca summer coat, with the triple stay attached; with four pockets, weight 6 oz., and can be worn either side.

A waistcoat of improved form and arrangement, made to supersede the use of braces across the shoulders. The fabric was manufactured by Messrs. Aaron Peace and Co., Clayton West, near Huddersfield.

An improved self-sustaining top to drawers, intended to supersede the use of belts.

- 129 **JOHNSTON, J., Stirling**—Manufacturer.
Hose, showing improvements at different periods.

- 130 **PATERSON, J., Dumfries**—Designer and Manufacturer.

A web of patterns, a vest, several vest pieces, and half-hose. All made on the common stocking frame, and exhibited for warmth, durability, and design.

- 131 **DARLING, G., 35 George Street, Perth**—Inventor and Manufacturer.

Gentleman's hat, thoroughly waterproof and ventilated; the mode of ventilation being quite novel. Highland bonnets.

- 132 **GIBSON, Capt., Perthshire**—Producer.
Shepherd's plaid of natural colour.

- 133 **LAING, JOHN, Hawick, Scotland**—Manufacturer.

Patterns of hosiery and under-clothing knitted upon the stocking-frame, made from Australian wools.

- 134 **HADDEN, ALEXANDER, & SONS, Aberdeen**—Manufacturers.

Knitting worsteds, spun from British wools. Card containing 1,000 colours, dyed on worsteds manufactured from British and Saxony wools. Knitted worsted shawl and hosiery.

- 135 **SMART, RICHARD, 10 Upper Eaton Street, Grosvenor Place**—Inventor.

The "Subclavian sector"—so called by its measures being taken from the armpit; an apparatus for obtaining more correct measurement of the human body.

- 135A **CATTANACH, CHARLES, Aberdeen**—Inventor.

Apparatus for measuring the human figure, and for transferring the measure to cloth so as to produce an exact fit of garment.

- 136 **ROY, JESSIE, Ferryhill, Aberdeen**—Inventor.

A landscape, knitted in Berlin worsteds. A pair of stockings, with Cashmere pattern.

- 137 **WOOD, JANET, Stencharren, Scotland**—Manufacturer.
Pair of fancy knitted worsted gloves.

- 138 **WEBB, Capt. THEODOSIUS, R.E., Woolwich**—Producer.

Specimen of knitting from the Shetland Isles, showing 28 patterns used by the inhabitants. The art of dyeing wool is considered to have been taught them by Spaniards wrecked there, after the dispersion of the "Invincible Armada."

- 139 **WHITEHEAD, WILLIAM, & SON, 41 South Bridge Street, Edinburgh**—Manufacturers.

Tartan hose, clan Breadalbane (or Campbell), made on a No. 32 gage frame; each pair containing 1,300 diamonds (or squares) made from fine worsted. Clan MacDuff, containing 540 diamonds. Clan Royal Stuart silk tartan, made on a No. 42 gage 3-needle frame.

- 140 **KAYE, FINDLAY, & Co, Leith, and Glasgow**—Manufacturers.

Cheviot wool hose: six pairs of women's two-thread grey, and six pairs white; twelve pairs children's white, and six pairs men's grey; twelve pairs men's half hose.

Six pairs women's hose, with ribbed tops, Saxony wool; twelve pairs men's half hose grey Shetland wool;

twelve pairs men's four-thread brown half hose; twelve pairs men's, vicuna wool.

Six women's gauze vests, six children's gauze vests, and six women's full dresses, all Cheviot wool.

Six men's gauze pantaloons, and six men's three-thread pantaloons, of Cheviot wool. Three men's four-thread Saxony wool pantaloons; six men's two-thread, and one ribbed, Cheviot wool, pantaloons.

Six men's vests, of Cheviot wool, with long sleeves, double-breasted, and shaped shoulder; six of the same, single-breasted. Six pairs of No. two and three-thread white worsted knit hose.

- 141 **SCOTT, PETER, 9 South Bridge, Edinburgh**—Designer and Manufacturer.

The V-breasted and swivel-collared shirt.

- 142 **MACKENZIE, WILLIAM BAILLIE, 126 Prince's Street, Edinburgh**—Proprietor.

Articles knitted by the hand in the Shetland Islands, from the wool of their sheep.

Shawls; handkerchief; child's frock; veils of the natural-coloured wool; white and coloured gloves; ladies' white and coloured mitts; ladies' brown and white stockings, very fine wool; an extremely fine pair of stockings; natural-coloured socks; white knee-caps; brown leggings, natural colour; sleeves; ladies' caps; nightcaps; wigs; comforters, and shirt.

Specimen of Shetland yarn, handspun; and of the Shetland wool, as it is taken from the sheep.

Articles that are knitted in Fair Isle, one of the Shetland Islands.—Fair Isle socks, gloves, vest piece, comforter, and cap.

Shawls and veils, knitted by the hand in Shetland from a thread spun by machinery, composed of wool and silk together.

[Knitting is the chief employment of the female inhabitants of these Isles in their own homes. Stockings have been made there from a very ancient period; but the fanciful knitting, comprising shawls, &c., is of recent introduction.]

- 143 **JOHNSTON, JAMES & GEORGE, Paisley, and 2 Chapter House Court, St. Paul's.**

Buckram and Paris net bonnet tops and crowns, manufactured by steam power.

- 144 **LAUGHLAND, J., Kilmarnock, Scotland**—Manufacturer.

Australian sheep's wool.

White, green, blue, and scarlet yarn, and an officer's dress bonnet, showing the process of knitting.

Knitted bonnet; milled bonnet; finished bonnet, as used by the officers of the 42nd, 72nd, 74th, 78th, and 92nd Highland regiments; all from Australian wool.

New regulation forage caps; serjeant's, blue; private's, blue, scarlet, and crimson.

Old regulation forage-caps; serjeant's, blue, with white band; private's, blue, with scarlet band.

Prince Charlie bonnet. Turkish bonnet cap or bonnet.

Balmoral bonnet. Glengarry bonnet.

Gentleman's head-dress.

- 145 **RITCHIE, PETER, Kilmarnock, Scotland**—Manufacturer.

Regulation military forage caps.—Serjeant's, blue and rife-green. Serjeant's, 71st Highlanders, Light Infantry. Serjeant's, with plaid border. Officer's, with white band. Scarlet Fex cap. Officer's, light blue cap. Prince Charlie caps, blue and grey. Blue Balmoral cap. Grey Glengarry cap, with plaid border. Caledonian hats, black, grey, and green. Specimens of the military and other caps, "set up."

- 147 KINCAID-LENNOX, F. M., *Lennox Castle, Lennox-town, & 9 Arlington St., Piccadilly*—Proprietor.
Linen and cotton shirts, made in Glasgow; exhibited to show the quality of plain British needlework.
- 147A RUTTENS, HELENE, 13 *Charles Street, Soho Square*—Inventor.
Fan, travelling, and specimen bonnets, in silk.
- 148 HAYWOOD, MARY, 3 *Dyer's Buildings, City Road*—Designer.
A shawl of white cashmere, worked in braid, ornamented and fringed with peacock's feathers, the eyes of which are disposed so as to resemble gems.
Narrow fringe, made of the same materials.
- 149 JONES, JOHN, 17 *Duke Street, Liverpool*—Inventor.
Registered tailors' symmetrometer. Adapted for cutting coats and waistcoats. The trousers' rule.
- 149A ROBINSON, J.—Inventor.
Measuring apparatus for tailors.
- 150 CLOWES, F., 28 *Ann Street, Birmingham*—Inventor and Manufacturer.
Improved elastic coat. Registered trousers, elastic riding belt, and brace.
- 151 MINIFIE, CHARLES, *Bristol*—Inventor and Manufacturer.
Registered coat sleeve shirt.
- 152 MCCLINTOCK, JAMES, & Co., *Barnsley*—Inventors and Manufacturers.
Double silk elastic woven corsets, with the royal arms and national emblems inserted. Woven to fit the body, and recommended for freedom of respiration.
Thread-wove corset, without seam.
- 153 BIET, HARFORD, *Shepton Mallet, near Wells, Somersetshire*—Inventor.
Transitional coat, adapted for changes of the weather.
A frock coat. An open-breasted vest. A double-breasted vest.
Surtout as an over-coat, with concealed hood for travelling, &c.
- 154 TOLLET, G., *Besley Hall, near Newcastle, Staffordshire*—Manufacturer.
Tippets, cuffs, cloaks, victorines, and muffs, composed of feathers and goose down, and made by the needle and thread.
- 155 HODGSON, T., jun., 39 *Iron Market, Newcastle-under-Lyme*—Designer and Manufacturer.
Elastic corset.
Invisible spinal support.
- 156 CLEMES & SON, *St. Austell*—Manufacturers.
Underground hats for Cornish miners and mine agents, used for protection against falling stones, &c.
- 156A BEAUFORT, Miss, *Cork*—Producer.
Knitted child's pelisse.
- 157 MASON, WILLIAM, *Newcastle-under-Lyme*—Manufacturer.
Velvet-nap hats, on an improved body. Waterproof beaver hat.
Waterproof felt hat, adapted to tropical climates.
Silk hat, on a body of cashmere.
Felt hat, designed by Mr. Killingworth Johnson, registered as the "Raphael."
Felt travelling hat, registered as the "Crichton."
- 158 LAURENCE, ELIZABETH, 15 *Montpelier Walk, Cheltenham*—Manufacturer.
White French merino dress for ladies, braided and trimmed with satin. Crimson velvet dress for boys, braided; the design, the rose, shamrock, and thistle.
White satin drawn-bonnet.
- 159 WHITE, E., *Edgar Buildings, Bath*—Manufacturer.
Bassinette, or infant's cradle, completely furnished.
Infant's frock and robe.
Lady's chemise and night dress. Gentleman's shirt.
- 160 HATHAWAY, Mrs., *Brompton, near Chatham*—Producer.
A baby's hat knitted in fine white silk.
- 161 FIRMIN & SONS, 153 *Strand and 13 Conduit Street, Bond Street*—Manufacturers.
Specimens of buttons. Stars of the Order of the Garter, the Thistle, and St. Patrick. Swords for officers in the army and navy, &c.
- 162 HURST & REYNOLDS, 100 *New Street, Birmingham*—Manufacturers.
Ladies' stays or corset, to fasten and unfasten instantaneously without lacing.
- 162A BEESTON, J. S., *Sraile's Cottages, Hammersmith*—Producer.
Inflated railway caps.
- 163 FIRKINS, JOS., & Co., *Worcester*—Manufacturers.
Ladies' habits. Black and coloured French kid gloves. Gentlemen's black and coloured calf gloves. Cape-goat gloves.
Beaver, Norway doe, Buck, Lisle, Berlin, and cloth gloves; improved thumbs and new cut, &c. Provisionally registered.
- 164 REDGRAVE, JOHN, *Worcester*—Manufacturer.
Men's coloured, black, and tan Cape gloves; piqué.
Ladies' white Cape gauntlets.
Habits—coloured, maze, Napoleon blue, yellow, light blue, and drab. Made from lamb-skins and Cape sheep.
- 165 RIDLEY, J., *St. Paul's Churchyard*—Manufacturer.
Ladies' boots and shoes.
- 166 THE LOCAL COMMITTEE OF NEWBURY, *Berkshire*—by Sir John Throckmorton.
An oil painting: Sir John Throckmorton presenting two South Down wether sheep to Mr. John Coxeter of Greenham, Newbury, Berks, who engaged, on the day they were presented, to make their wool into a piece of cloth, that should be made into a coat by 9 o'clock of the same evening.
The sheep were immediately shorn, and the wool sorted and spun. The yarn was spooled, warped, loomed, and woven. The cloth was burred, milled, rowed, dyed, dried, sheared, and pressed. The cloth having been thus made from the fleece in 11 hours, was put into the hands of the tailor at 4 o'clock in the afternoon, who completed the coat at 20 minutes past 6, having been only 2 hours and 20 minutes in making it: Mr. Coxeter then presented the coat to Sir John Throckmorton, who appeared with it on, before a large assembly of spectators.
- 167 NORMAN, S. W., 4 *Oakley Street, Lambeth*—Inventor and Manufacturer.
Ladies' cork and leather light waterproof boots.
Ladies' shoes.
- 168 LONGDON, R., and Sons, *Derby*—Manufacturers.
Patent frame-work gloves, without any seam on one side.
Smith's patent "Soccopedes Elasticus." This boot requires no lacing.

- 168A HELPS, Miss, *London Road, Liverpool*—Producer.
Gutta percha articles.
- 169 POORE, J. B., 9 *Princes Court, Banner St., St. Luke's*—
Designer and Manufacturer.
A lady's victorine, with cuffs, made of feathers, ornamentally arranged. Original design and manufacture.
- 170 BARFORD, FRED., *Market Place, St. Albans, Hertfordshire*—Inventor.
Registered "Brazilian palm-leaf Wellington" hats. This hat has a feather edge, interwoven with the palm leaf. It is also interwoven with various-coloured straws, forming a brim and band, and dispensing with any ribbon or other ornament.
The "Princess Alice" hat for young ladies, formed only of the palm-leaf, with a fancy band, brim and feather edge.
The "Chinese" hat, with a fancy band, brim and feather edge, also made of the palm-leaf.
Three willow hats of the English willow-tree.
[The Brazilian, or palm-leaf, is of great size and substance, and the tree is indigenous to South America. After its importation, it undergoes various processes, as bleaching, &c., for the improvement of its colour, and to render it soft, pliable, and available for working; it then becomes light, durable, and useful. The above hat is accompanied by a portion of the palm-leaf.]
- 171 ASHTON, A., *George Street, Portman Square*—
Inventor.
Registered bonnet and case.
- 172 ELLIOTT, W., *Dunstable, Beds*—Manufacturer.
Straw hats, bonnets, plait, and fancy straw articles.
- 172A COOPER, J. J. & G., *Dunstable, Bedfordshire*—
Manufacturers.
Straw hats and bonnets. Plait, and fancy straw articles.
- 173 MUIRS, CONNELL, & BRODIE, *Luton, Bedfordshire*—
Manufacturers.
Specimens of plaits and bonnets manufactured from wheat straw grown in Bedfordshire.
Wheat straw as taken from the fields, prepared for making whole straw plait; prepared for splitting; split ready for plaiting; whole straw plait, whipcord, and improved whipcord plait.
Luton, Devon, China, Coburg, and pearl; Coburg, Bedford, Indiana, Brussels Coburg, tulip, and fancy-tulip plait.
Luton patent improved whipcord, patent whipcord, Indiana, satin, porcupine, diamond, split Coburg, and China pearl rice, Bedford plait.
Ladies' bonnets, including whole-straw, whole-whipcord, improved whipcord, Luton, fine patent, fine split, tulip, fancy tulip, Indiana, Brussels, Coburg, and fancy split, improved and patent rice, whipcord, diamond, China pearl, Bedford, split Coburg, fancy split Coburg, and fancy coloured.
Maid's whole whipcord, and girl's fancy Albert, and child's patent bonnets.
Boys' fancy Coburg, and improved hats.
- 174 LINKLATER, —, *Shetland Isles*—Producer.
Specimens of knitting peculiar to the Shetland Isles.
- 175 KEARSE, THOMAS, 40 *George Street, Limerick, Ireland*—Designer.
Winter and summer overcoat combined, composed of Irish frieze and tabinet, and capable of various transformations.
Waistcoat of Irish frieze and tabinet, of similar construction. Trousers of Irish frieze.
Infantry coat and cavalry waistcoat, lined with Irish tabinet.
- 176 FARRANGE, Miss, *Wicklow, Ireland*—Producer.
Knitted stockings.
- 177 VINCENT, R., *Glostonbury*—Manufacturer.
Suit of leather clothes, made to imitate superfine black cloth.
- 177A STEWART, JANE, *Templetrine Glebe, Bandon, Ireland*—Proprietor.
Articles made at the Templetrine industrial school by the poorest class of the peasantry, viz.: coarse ribbed gentlemen's white socks. Knitted long and short black silk mittens. Children's knitted silk socks. Fine white knitted ladies' stockings and mittens.
- 178 KELLY, J. & Co., 98 *High Street, Kilkenny, Ireland*—Manufacturers.
Buckskin hunting breeches; buckskin raw material, &c.
- 179 NAIRN, THOMAS GRAHAM, *Limerick*—
Manufacturer.
Irish uniform frock-coat, for the Royal Horse Artillery. Irish frieze national cape, flowered at bottom; with the frieze cut, and sewed on; without seams, and cut out of the piece.
Irish frieze paletot-jacket, for shooting, fishing, and walking.
- 180 WOODHOUSE, JOHN, 39 *Lower Ormond Quay, Dublin*—
Manufacturer.
Gilt and plated buttons. German silver letters and figures. Brass mountings for military accoutrements.
- 181 PEASANTS, FEMALE, of *Wexford, Ireland*—Producers.
Samples of Traneen grass, plaited in the Leghorn and Tuscan style.
- 182 MAHER, LOUISA, *Ballinkeele, Enniscomorthy, Ireland*—
Proprietor.
Samples of *Cynosurus cristatus* grass, or Traneen; and of rye straw. Plait of these articles.
Articles made of Traneen plait, viz., hat, bonnets, flower-stands, and basket; and of rye straw plait, viz., hat and basket.
Samples of black, white, and coloured floor-matting. Twenty-four varieties of plait for bonnets made of Traneen.
[The *Cynosurus*, called in English crested dog's-tail grass, forms a large part of all good pastures, lawns, &c., in England and Wales.—J. L.]
- 183 WILSON & SON, *Drogheda Street, Dublin*—
Manufacturers.
Balbriggan hosiery.
- 184 DICKS, W., *Yecvil*—Manufacturer.
Lamb-skin gloves.
- 185 ENSOR, THOMAS, *Milborne Port, near Sherborne*—
Manufacturer.
Fur and kid gloves. Gloves lined with silk plush, wools, lamb-skin, &c. Goat, calf, lamb, sheep, deer, and fawn gloves.
Patent glove, with a small purse inserted in the palm of the left hand.
- 186 WHITBY, E., *Yecvil*—Manufacturer.
Skins in various stages of manufacture, and gloves.
- 187 PITMAN, J., *Milborne Port*—Manufacturer.
An assortment of gloves.
- 188 RAWLINGS, JOSEPH, B., *Abbey Silk Mills, Sherborne, Dorset*—Manufacturer.
Gloving and sewing silks, for tambour, of various shades. Scarf; half-twist cloth, &c., of superior quality.

189 MONEY, ELIZABETH, *Woodstock, Oxon*—
Manufacturer.

Lamb-skin, as received from the leather-dresser.
Drawn, round, and seam gloves, manufactured from lamb-skins.
English fawn-skin riding gloves for ladies.

190 CORRY, JOHN & JAMES, *Queen Camel, near Yeovil, Somerset*—Manufacturers.

Coloured and white lamb-skins.
Ladies' and gentlemen's coloured and black leather grain gloves.

191 MATHIESON, Lady, *Levis Castle, Stornoway*—
Producer.

Embroidered muslin skirt, worked by the children at the school in the Hebrides.

Two pair of hand-screens, made from feathers of wild birds in the outer Hebrides, by Miss Cameron of Stornoway.

192 THOMPSON, JOHN, & Co., *Kendal*—Manufacturers.

Hand-knit Guernsey frocks (or woollen shirts). Scarlet and fawn caps; single scarlet; fancy striped; and striped Kilmarnock caps. Fancy Glengarry and plaid caps (or bonnets). Striped fleecy and milled mitts. Wad-milled overalls (or boot-hose).

193 FRY, JAMES, *Godalming, Surrey*—Manufacturer.

Fine Lisle-thread hose embroidered. Four-thread hose, plain.

Fleecy breast-plates. Segovia shirts and pantaloons. Merino shirts and vests.

Cotton pantaloons, drawers, and shirts.

The three preceding articles are all in different qualities.

194 HOLLAND, THOMAS, & Co., *Langham Factory, Godalming*—Inventors, Manufacturers, and Proprietors.

Ladies' dresses; waistcoats, petticoats, drawers, &c.
Men's shirts, trousers, drawers, hose, &c., manufactured of a fleecy wool, different from any hitherto adopted for under clothing.

Similar articles in "Segovia," likewise prepared from a peculiar wool; also, in "double Segovia," and in silk and wool.

Men's trousers, shirts, and hose, in cotton. Cloth for outside wear.

Over-coat, exhibited for lightness and warmth.

Elastic cloth, calculated for breeches and trousers, used in riding.

Registered waistcoat, with elastic ribbed back.

Registered shirts, with elastic backs, and smooth fronts; ribbed or plain, made from cotton, silk thread, &c.

195 WARD, STURT, SHARP, & WARD, *Belper, Derbyshire, and 89 Wood Street, Cheapside*—Manufacturers.

Specimens of hosiery and glove manufactures, viz. :—

Hose, half-hose, vests, and drawers, in all qualities from 24 guage to 70 guage, manufactured from cotton, Lisle thread, merino, cashmere, silk, and spun silk, amongst which are cotton and Lisle-thread hose made on a 70-guage frame.

Gloves, mitts, cuffs, sleeves, and caps made from the same materials.

[By the number of gauge is meant the quantity of loops within a given space, and hence when these are increased within that space, the quality of the fabric is increased in delicacy and value.

The invention of the stocking frame is generally ascribed to William Lee, an expelled Cambridge student, who, watching the fingers of his wife, as she toiled for their mutual support by knitting stockings, devised this machine. By Elizabeth and James I., Lee was denied that protection and encouragement due to inventors; he,

however, succeeded in receiving, at the hands of Sully, the minister of the French King Henry, an acknowledgment which was denied by his own countrymen. Lee died in France, and one of his apprentices brought the manufacture back into England, where it has been finally established and successfully carried out, Nottingham and Leicester being its grand centres.]

196 CARTWRIGHT & WARNERS, *Loughborough, Leicester*—Spinners and Manufacturers.

Patent Angola and merino yarns, of various qualities. Patent Angola and merino hose, half-hose, and socks (white and coloured).

Shirts, drawers, and ladies' vests and dresses.

Cotton hose and half-hose, with patent Angola ankles and feet.

197 TAYLOR & BEALES, *Leicester*—Manufacturers.

Worsted, woollen, and cotton hosiery of all kinds.

198 HARRIS, RICHARD, & SONS, *Leicester*—
Manufacturers.

Lisle, Berlin, military, Cashmere, pique cloth, knitted, and lined gloves. Tricot piece goods. Cuffs. Mitts. Ruffles. Muffatees. Socks and booties. Gaiters and bootkins.

Caps, hoods, hats, and bonnets. Mantillas and muffa. Neck-ties, scarfs, and boas. Comforters.

Sailors' and fancy caps. Guernsey, worsted, and lambs-wool, fancy frocks and shirts. Worsted vests. Lambs-wool pantaloons. Fancy cotton shirts.

Antimacassars. Netted handkerchiefs and shawls. Woven shawls.

Children's dresses. Polkas and jackets.

199 HUDSON, JAMES, *Leicester*—Manufacturer.

Lambs-wool, Cheviot, Cashmere, Saxony, Victoria, and worsted hose. Frame-knitted cotton and worsted hose. A variety of half-hose.

200 BAINES, JOHN, *Bowling Green Street, Leicester*—
Manufacturer.

Wool, worsted, and Cashmere hose and half-hose.

201 BILLSON & HAMES, *Leicester*—Manufacturers.

Children's socks and three-quarter hose; worsted socks, and a variety of cotton, worsted, Cashmere, and merino hose.

202 ANGRAVE BROTHERS, *Leicester*—Manufacturers.

Lambs-wool hose, half-hose, shirts, and pantaloons, various qualities. Royal ribbed and Cashmere shirts and pantaloons.

Ladies' woollen vests and dresses.

203 WARD, WILLIAM, & SONS, *Leicester*—Manufacturers.

Patent fancy cravats, boas, and pelerines without seam. Gentlemen's alpaca coats and capes. Ladies' polka coats.

Fancy boots and gaiters. Worsted and cotton hose. Wool frocks.

204 BEALE & LATCHMORE, *5 Belvoir Street, Leicester*—
Manufacturers.

Lambs-wool shirts, pantaloons, drawers, vests, and ladies' dresses. White worsted ladies' dresses; and men's shirts and pantaloons, and vests. Royal ribbed shirts and pantaloons. White Guernsey shirts; Canadian shirts, and pantaloons; coloured shirts, lambs-wool and Cashmere hose and half-hose.

205 BIGGS & SONS, *Leicester*—Manufacturers.

Men's worsted, lambs-wool, royal ribbed, and cashmere shirts and drawers.

Guernsey and Jersey frocks, white and fancy.

Women's worsted, lambs-wool, Cashmere, and royal ribbed shirts and drawers.

Men's Scotch lambs-wool shirts and drawers, and blue, red, and tri-coloured striped shirts.
Men's worsted, Cashmere, and lambs-wool half hose.
Children's and women's fancy polka-coats.
Men's, women's, and children's Lisle thread, silk mixed, Cashmere, and mixed cashmere gloves.
Patterns of worsted, cotton, Lisle thread, and Berlin wools.
Union cord and stocking net pieces.

306 WHITELER, THOMAS, & Co., *Abbey Mills, Leicester*—Manufacturers.

Elastic woven fabrics, for garters, glove tops, &c.
Elastic braids (under patent of Christopher Nickels, of 11 Goldsmith Street, London) for gloves, wristlets, &c., and other purposes. Non-elastic webs for braces and belts.

Crape and cloth, made, under Nickels' patent, on twist lace machine.

Pile fabric, made on warp machine.

Push mantillas, from the patent and other fabrics.

Folks jackets, muffs, &c.

207 BIDDIX, JOHN, *Leicester*—Manufacturer.

Cloth of hares' fur and wool uncleaned, made on the stocking-frame; of hares' fur and Saxony wool, with spun-silk warp; of wool from the Cashmere goat; of vicuna wool, from the west coast of South America; of the beaver; and of Saxony wool.

Gloves of hares' fur cloth and Cashmere goats-wool cloth; vicuna and Saxony.

Gloves of Lisle thread-web, made on the warp-machine from No. 300 thread.

Travelling rug, made of the coarsest portions of the vicuna fleece.

208 CORAN, NATHANIEL, & Sons, *Granby Street, Leicester*—Manufacturers.

An extensive assortment of hose, half-hose, and socks, of varied materials, colours, and texture.

Ladies' and gentlemen's wool vests and drawers.

Infants' white and coloured boots.

Ladies' fancy wool cuffs and sleeves. Men's cuffs.

Children's muffs.

Ladies' fancy wool head-dresses. Infants' fancy wool hoods, hats, and bonnets. Ladies' wool paletots.

209 ELLIS, FRED. & JOHN, *Leicester*—Manufacturers.

Silk, Lisle thread, and Cashmere gloves.

211 HARDING, THOMAS, 108 *Regent Street*—Manufacturer.

Vest buttons for gentlemen in lapis lazuli, malachite, coral, onyx, cornelian, bloodstone, aventurine, sardonyx, jasper, &c. Likewise fancy pearl and other dress buttons for ladies.

212 WELCH, MARCETSON, & Co., 17 *Cheapside*—Manufacturers.

Robe de chambre, composed principally of cotton material, and exhibited for quality, durability, and cheapness. Dress stock, on an improved wire foundation, exhibited for ease and durability. Dress full front stocks with embroidered lace fall, new in design.

A selection of "once round" cravats, with embroidered lace ends, new design and pattern. Patent wove linen shirt fronts. The same in piece, and in the grey or unbleached state. Embroidered shirt fronts. An improved travelling or hunting flannel shirt.

The Prince of Wales belts. The Cantab braces. Registered. Most of the preceding manufactured by the exhibitors.

213 STANDON, ANNE, 23 *Wood's Mews, Grosvenor Square*—Manufacturer.

A quilted blue silk bed-cover; exhibited for workmanship.

213A LERWICK LOCAL COMMITTEE, *Scotland*—Producers.

Specimens of knitting from the Shetland Isles.

215 MUIR, CONNELL, & BRODIE, *Glasgow*—Manufacturers.

Specimens of straw bonnets and plait, manufactured from rye straw grown in the Orkney Islands.

216 DAVIES, RICHARD, *Shaw's Lane, Carmarthen*—Inventor.

A hat made of leather by a peculiar process.

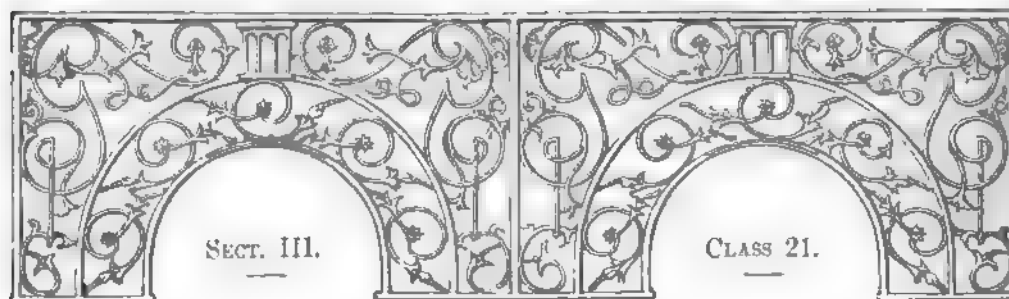
217 WESTMINSTER, the Marchioness of.

Specimens of Shetland hand-knitting.

218 M'CRA, *Western Highlands*.

Specimens of hand-knitting in Berlin wool.





CUTLERY, EDGE AND HAND TOOLS.

INTRODUCTION.

THE present Class in some degree carries the attention again among the implements used in manufactures, and comprehends all those tools not included in Class 6. The tools belonging to the present Class are principally of the smallest description employed in arts requiring delicacy and precision of touch, rather than the exercise of mechanical force. The knives and other sharp instruments, coming under the general denomination of Cutlery, are objects of familiar knowledge and employment.

The Class is divisible into two Sub-Classes; the first of these, A., includes Cutlery, such as Knives and Forks, Pen and Pocket Knives, Razors, Scissors, and Shears: of these some are employed for personal, domestic, or commercial purposes—some for use in various trades and handicrafts—and some belong to the class of ornamental rather than useful articles: B. comprehends Files and other small Edge Tools, not included among Manufacturing Tools in Class 6—of these, some are applicable to the purposes of the engineer and smith, others to those of masons, &c. A finer kind is employed by jewellers, lapidaries, watchmakers, and other workers in philosophical instruments or in precious metals; others are used for woodwork by carpenters, cabinet-makers, &c., and others by artists and engravers.

For those articles in this Class which have not been sent from Sheffield, search will be made in the North Gallery. The Sheffield goods, belonging in strict propriety to this Class, are included among hardware in the following Class, and will be found in the Building on the South Side of the Nave, about midway between the Transept and the Western extremity. The manufactures of Sheffield being the most important, it is necessary to defer the notice of them to the succeeding Class, for the reasons just stated. Nevertheless, in the Metropolis itself a very considerable amount of the best descriptions of articles of cutlery are made; but the proportion of Metropolitan goods in this department, is small in comparison with that of Sheffield, in which the manufacture of cutlery holds a position of the greatest extent and importance.

Many of the minute tools employed in the carver's art and in that of engraving are here exhibited. These tools have acquired much celebrity, and are manufactured of a superior description of steel, and with much skill and care. Although presenting no external feature of interest, these minute instruments represent the means by which much of what is artistically beautiful and pleasing to the eye has been produced: the ingenuity which applies itself to the perfection of the most ordinary articles is conspicuously manifested in many of the specimens of cutlery exhibited, employed either for personal or domestic use.—R. E.

**1 WEATHERLY, EDWARD, 3 Belmont Terrace,
Windsor Road.**

Tall's saw-set, being a patent for improvements in the apparatus for setting saws.

**2 THORNHILL, WALTER, 144 New Bond Street—
Manufacturer.**

Steel chatelaine, manufactured after the style of the old pierced steel work. Scissors. Bread knives, with carved box and ivory handles.

Model of a pruning instrument, for pruning trees at any height. Model of a flower-gatherer, which cuts off the flower and holds it.

Specimens of cutlery.

**3 BRADFORD, R. & W., 72 Patrick Street, Cork,
Ireland—Manufacturers.**

Razors, with pearl and tortoiseshell handles, gold rivets, labels, and gold plated heads.

Razors, with ivory handles and silver labels.

A knife, with lock-joint, large blade, pen blade, button hook, corkscrew, leather-punch, gunpicker, twee-lancet, and turncrew.

Large lock-joint knives, with corkscrews.

A knife, with two blades, corkscrew, and leather punch.

Four-bladed knives, with pearl and stag handles.

Three-bladed knives, with pearl and ivory handles.

Two-bladed penknives, with pearl handles.

Pruning knives and corkscrews.

The razors are so constructed that the thickness of the back and the breadth of the blade give the edge the proper angle for shaving with ease. They were carefully hardened, and tempered in a metallic bath, regulated by a thermometer.

**4 BLOFIELD, THOMAS GUEST, & Co., 6 Middle Row,
Holborn—Manufacturers.**

Table cutlery made in London.

Emigrants' and travellers' protector, or burglars' intimidator.

Razor strop, with one side only, and having two handles, by which the equality of the surface is preserved. Invented by the exhibitor.

5 **KING & PEACH, Hall**—Manufacturers.
Specimens showing the different stages in the manufacture of a moulding plane.
Moving fillister, with the fence fixed in the usual manner, and with improved fence.
A sash-fillister, for making the rebate in a sash-bar.

6 **DEANE, DRAY, & DEANE, London Bridge, City**—Proprietors.
Set of superior table and dessert cutlery, with steel, French pattern, three-prong forks, with grand and game carvers, and parallel table steel to correspond.
Table and dessert knives, silver ferrules; grand carvers, game carvers, and hexagon table steel; vegetable four-prong fork.
Table and dessert knives, fluted ivory; with grand and game carvers, and knife sharpener.
Table and dessert knives, Waterloo balance, with grand and game carvers.
Mother-of-pearl silver plated dessert knives and forks, fluted handles.
Ivory German frame spear-point bowie-knife; stag German frame clip-point, polished and glazed.
Ladies' superior fine scissors.

7 **MORTON, J. & G., 8 Great Turnstile, Lincoln's Inn Fields, and 39 Cheapside**—Manufacturers.
Specimens of London-made table cutlery.

8 **WOOD, J., 28 Spurrier Gate, York**—Manufacturer.
Registered York razor, having a level or slope only on one side. Specimens, showing the different stages of manufacture.

9 **COWVAN, BERNARD & SAMUEL, 164 Fenchurch Street**—Inventors.
Canton strop, or Chinese razor-sharpener.

10 **SHARPE, J. & R., 5 Gough Square**—Manufacturers.
Table-knife cutlery, manufactured in London.

11 **ADDIS, SAMUEL JOSEPH, 20 Gravel Lane, Southwark.**
Tools used by carvers.

12 **MECHI, JOHN JOSEPH, 4 Leadenhall Street**—Manufacturer.
Specimens of British cutlery, razors, scissors, pen-knives, and table knives, in cases.
Specimen razor and table knife, made from the finest tempered steel.
Specimen of the rough steel from which they were manufactured; and specimens showing the various stages of the process.
[In the succeeding class will be found various notes giving account of the process of manufacture of cutlery generally. This manufacture is carried on principally at Sheffield; but it is also prosecuted in other towns, as in the Metropolis, though to a very limited extent.]

13 **MOSELEY, JOHN, & SON, 17 & 18 New Street, Covent Garden**—Manufacturers.
Specimens of planes and various other tools, with modern improvements.
Tool chests, containing tools, adapted to the various branches of mechanical skill.
Cutlery, needles, &c.

14 **LOT, WILLIAM, 24 King Street, Whitehall**—Manufacturer.
Club skates with straps. Skates, fitted with cramps and heel fastenings, to secure them to the boot without straps. Ladies' skates, similarly improved.

15 **LOT, W. T., jun., 60 St. Martin's Lane**—Designer and Manufacturer.
Specimens of cutlery. Registered razors fitted with the Tudor guards.

Razors, with carved ivory and chased metal handles in bronze, silver, and electro-gilt.
Carving knives and forks, and other articles of cutlery, of new design.

16 **FIELD, E., 17 Mary Ann Street, St. George's East**—Inventor.
A cabinetmaker's case of tools.

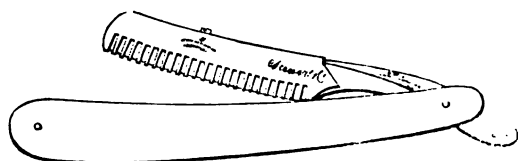
17 **WALDRON, WILLIAM, & SONS—Stourbridge**—Manufacturers.
Scythes, as used in various countries.
Crown chaff-knife. Hay-knives, with side and T handles. Trussing knife. Bramble scythe.
American grass hook; South of England reaping hook; hedge brushing hook; and pea bill hook.

18 **BUCK, JOSEPH, 91 Waterloo Road, Lambeth**—Manufacturer.
Circular and other saws. Variety of turning and other mechanical tools.

19 **YEATES, FREDERICK GREEN, 10 Wincoburn Buildings, City Road**—Inventor and Manufacturer.
Registered lever knives, for opening preserved provisions, fruits, lardine cases, &c. The advantage is in the power of the fulcrum, or leverage.
Registered twine or string boxes. The internal box, containing the ball of string, revolves and draws back the superfluous string, preventing its becoming entangled.

20 **BAKER, WILLIAM, 14 Allen St., Goswell Street**—Manufacturer.
Awls, bodkins, steels, and other implements, for shoe-makers, carpenters, &c.

21 **STEWART, CHARLES, & Co., 22 Charing Cross**—Manufacturers and Patentees.
Patent Plantagenet guard razor. This razor is shown with the guard in the annexed cut.



Patent Guard Razor.

Improved razor-strops and paste. The process of cutlery in the manufacture of the razor.

22 **TYZACKS, J., 7 Upper Berners St., Commercial Rd. East**—Inventor.
Double patent British razor.

23 **ADDIS, JAMES B., jun., 17 Charlotte Street, Blackfriars Road, and 29 Lucas Street, Deptford**—Inventor.
Carving tools, and a newly-invented set of tools for carving fruit.

24 **KNIGHT, GEORGE, & SONS, Foster Lane**—Manufacturers.
The amateurs' complete lathe cabinet, consisting of a 4½-inch centre lathe on an iron bed, fitted with a slide-rest, and accompanied by a complete arrangement of chucks.
Apparatus and tools requisite for wood, bone, and metal turning, including newly-invented chucks for cutting, filing, and planing.
Mr. Francis' new lathe-rest for the support of delicate work, revolving between the mandril and back centre; also, for boring cylinders, &c.
A dividing engine for the lathe, invented by the Rev. F. Meyler, for the purpose of obtaining a correct division of the circle with great facility.

Improved cleaning, grinding, and polishing machine, for tools, &c., fitted with a series of bobs in bright spindles.
Inside and outside goffering machine, for silks, muslins, straws, &c.

Crimping machine for shawls.

Outside crimping machine, for caps, collars, and dresses.
An assortment of punches for dress-making, flower-making, pattern-making, &c., consisting of straight and pinking; plain and compound scallop; pricking; plain, round, oval, and jagged; leaves, sprigs, veiners, &c.

Joiner's tool-chest, fitted with saws in covered till, planes in rack, and nest of divided drawers, containing a complete assortment of tools.

Household tool-chest, with till and drawers, containing a complete assortment for common purposes.

Amateur's tool-chest, fitted with a tray and divided drawer, and a complete set of tools.

Warehouse chest, fitted with divisions, containing an assortment of tools for packing, opening, and trimming boxes, cases, and casks, and general warehouse work.

Blasting apparatus, for rending timber, stumps of trees, &c.

25 **COLOAN & SON, Limerick**—Manufacturers.
Specimens of cutlery.

26 **BRADFORD, SAMUEL, Baywell Street, Clonmel, Ireland**—Manufacturer.

Razors, in tortoiseshell, pearl, plain and carved ivory handles; and with the "tang," or that part of the blade held while in use, made in ivory or pearl.

Razor blades in the different processes, from the bar of steel to the finished blade.

Penknives, pocket-knives, and sportsmen's knives. Hunting knives, by which a broken stirrup-leather &c., may be instantly repaired. Office knife, containing pen-blade and paper cutter, pencil, and letter-weighting apparatus.—Both invented by exhibitor.

Portable slip knife and fork; the fork blade may be removed and replaced by a saw, file, button hook, &c.

German smoker's knife. Daggers, steel mounted, carved, and turned ivory handles. German hunting knife.

Cucumber slicer, which may be adjusted to any knife.—Invented by exhibitor. Tobacco cutter. Pair of skates, on an improved principle.

27 **IBBOTSON, —, Glasgow**—Producer.

Panel or block plane, capable of being altered to a mitre plane.

28 **OFFORD, D., Great Yarmouth**—Inventor.

Improved masticating knife and fork for dyspeptic persons. Provisionally registered.

[A masticating knife, so called from the minute state of division to which it reduces the food, consists generally of a number of blades, which, when acting on the food, divide it at one stroke into a number of portions. The utility of this invention, for those who require its assistance, appears to be established by experience.]

31 **HANNAH, A., Glasgow**—Manufacturer.

Assortment of Thomson's augers, braces, bits, claw and clench hammers, scollops, for boring wood, &c., of various dimensions and designs.

32 **MATHIESON, A., Glasgow**—Manufacturer.

Assortment of braces, bits; pianoforte-maker's key tools; turning and carving tools; chisels, gouges, &c. Mash, claw, veneer, and clench hammers. Saw buckles with swivel. Sets of screw augers. Sash and shutter cramps. Holdfast with swivel screw.

Flit ploughs with steel bridle and round brass stems; with improved angular slide; with screw stems; and with solid handle.

Sash and side fillisters, with improved stop brass stems. Trying, jack, and smoothing planes.

33 **HILLIARD & CHAPMAN, Glasgow**—Inventors and Manufacturers.

1. The "Clydesdale razor"—a model razor on a large scale, exhibited for symmetry and execution.

2. The "people's razor."

3. The "organic razor." The angle of the edge is produced on the under side of the blade, and the principal concavity on the upper side. The configuration of the blade, at the point, heel and tang, is part of the improvement.

4, 5, 6. Additional samples of the "organic razor."

7. The "hypenetome, or beard plane," invented in 1851; new instrument for shaving; constructed on the principle of the carpenter's plane. It may be used with either right or left hand, and it admits of wiping, stropping or sharpening, like a common razor.

8, 9, 10, 11. Additional samples of the "hypenetome."

12. The "vallise strop," invented in 1851; containing the "hypenetome, or beard plane," shaving brush, shaving-soap, in case, and the strop.

13. The registered table knife, with invisibly secured handle. By a simple contrivance, incurring scarcely any additional labour, or expense in construction, the handle and blade are locked together, and cannot get loosened in use, while they may be readily separated for repair or renewal. The fastening is invisible, the handle showing no rivet, screw, or nut, of any kind.—Registered, March 7, 1851.

14, 15, 16, 17, 18. Additional samples of the registered table knife, showing the various patterns; with some of the handles left loose, to explain the principle of the invention.

19. Blade and handle of the registered table knife, in separate parts, the latter, sectionally divided, showing its internal construction.

20. The "superior family table knife." Exhibited for elegance, utility, and durability.

21. The "sporting gentleman's pocket knife," with graduated portable flem.

22. The "improved pocket flem-knife," for veterinary surgeons and grooms.

23. The "country gentleman's knife."

24. The "nude truss," for hernia. Exhibited for simplicity, lightness, and comfort in use. All padding or covering being dispensed with, it can be used while bathing, without being affected by the water.

34 **SAUNDERS, G., Broadway, New York.**
Four-sided metallic tablets and razor strops.

35 **MATHIESON, THOS. A., & Co., 65 Nicholson Street, Edinburgh**—Manufacturers.

Improved sash fillister plane for windows; wood brace, brass neck, improved pad, and pattern bits.

36 **MACPHERSON, C. & H., 1 Gilmore Street, Paul's Works, Edinburgh**—Manufacturers.

A brace, with all kinds of bits used for boring, drilling, and countersinking.

37 **BARKER, ROBERT, Easingwold, Yorkshire**—Manufacturer.
Butchers' and house steels.

38 **TOMLIN & Co., Kettering, Northamptonshire**—Manufacturers.

Sickles for reaping corn, used in the midland counties. The teeth are cut fine and ground sharp without pulling out.

Shears used in sheep-shearing, wool-sorting, thatching, and carpet-making.

39 **STUBS, PETER, Warrington and Rotherham**—Manufacturer.

Blister and shear steel. Cast-steel, in the ingot and the bar. Coach-spring steel. Lancashire files and tools.

Magnets, made according to the system of the Rev. William Scoresby, D.D.; remarkable for their great power.

[Dr. Scoresby, who has devoted a large share of his attention to the construction of magnets, adopts the following mode of imparting magnetism to steel bars. He places the bar to be magnetised upon two powerful magnets, and then draws them gently apart until the upper bar rests with its ends on either end of the magnets; in this position it is allowed to rest for a short time, and then slid off laterally, the other side being turned down, and the process repeated until the bar of steel is thoroughly saturated. Dr. Scoresby insists upon the importance of using the hardest steel; and the most powerful magnets which he has constructed are made of a series of thin plates of steel, hardened throughout, each one of the series being separately magnetised.—R. H.]

Minerals, &c., from which magnets are made, viz., iron ore, from Dannemora, in Sweden; calcined ore; pig and bar iron.

40 GRADWELL, G., 8 Market Street, Manchester—
Proprietor.

Specimen of cutlery, knife with 300 blades, each having a separate spring.

42 BELCHER, ISAIAH, Waterloo Street, Wolverhampton—
Manufacturer.

Various augers, bits, borers, chisels, and gouges, for shipwrights, carpenters, coopers, pump-borers, and wheelwrights.

46 DURHAM, JOSEPH BANKS, 456 New Oxford Street—
Manufacturer.

Articles of cutlery. Highly polished and richly cut steel chatelaine, with improved scissors and tablet.

Series of blades, showing the various stages of a table knife, from the bar of steel to the finished blade.

47 HILL, J. V., 5 Chichester Place, Gray's Inn Road—
Manufacturer.

London-made saws; the blades, after they are ground, are filed to a gauge, so that there is no friction on the blade of the saw. Other tools.

48 BEACH, W., Salisbury—Manufacturer.

Assortment of cutlery, including fox-pad and fawn's-foot hunting-knives.

Newly designed pearl paper-folding knife, representing the crown, sword, and sceptre, with engraved views of Wilton House, Wilton Church, Salisbury Cathedral, and Stonehenge.

Carvers' pruning knives, shooting knives, &c.

Fine scissors, in newly invented steel cases for chatelaines. Model of Stonehenge.

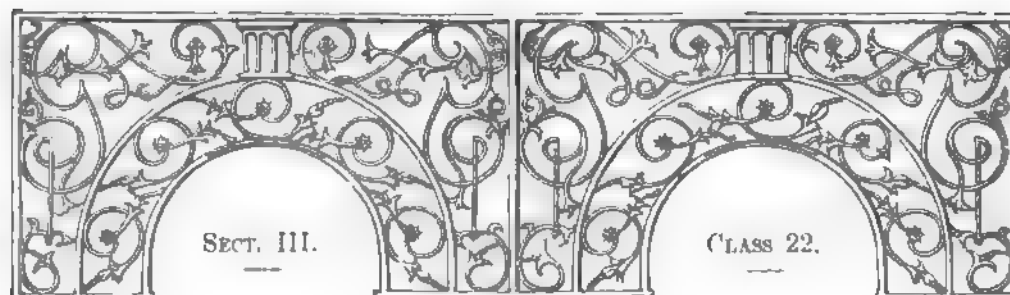
49 EASTWOOD, G., 31 Walmgate, York—Inventor and
Manufacturer.

A panel-plane, answering the purposes of both panel and nitre.

50 BLACKWELL, W., 3 Bedford Court, Covent Garden.

Registered razor guards and razors, corn knife, corkscrew, &c.

(For Sheffield goods, see Class 22, Nos. 102–235, &c.)



GENERAL HARDWARE, INCLUDING LOCKS AND GRATES.

INTRODUCTION.

THE smaller manufactures of iron, copper, brass, tin, &c., are represented by the objects contained within the limits of this extensive Class. These manufactures are of considerable importance to this country, and employ a large number of hands and a considerable amount of capital. But the objects themselves are often of the most trifling description; and were it not for the knowledge that upon their production depends the subsistence of many thousands of operatives, they might be passed by without notice. But in the manufacturing world the minutest article has its importance when the consumption of that article is great and the demand constant. It will consequently be found that the most insignificant object comprehended within this Class has important relations with the prosperity, not merely of a few individuals or of one manufactory, but of an entire district and its population.

The Class includes the following Sub-Classes:—A. Brass Manufacture, as Cabinet and General Brass Foundry, Hinges, Fastenings, Door-knockers, Castors, &c.; B. Copper, Zinc, Tin, Pewter, and General Braziers, as Kettles, Saucepans, Urns, Tubing, Inkstands, Spoons, &c.; C. Iron Manufacture, as Stoves, Grates, Fenders, Locks, Hinges, &c., and objects of a larger kind, as Mangles, Gates, &c.; D. Steel Manufacture, as "Heavy Steel Toys," such as Hammers, Vices, &c., and "Light Steel Toys," as Brooches, Buckles, &c.; E. Buttons; F. Wirework, Gauze, Hooks and Eyes, Pins, &c.

A considerable amount of space is occupied by this important Class in the Building. The articles comprised in it will be found on the South Side of the Western Main Avenue, to the West of the Colonial Productions. The Areas L. M. N. and O. 18 to 20, and 25 to 27, are occupied with these. Along a considerable part of the length of the Avenue O. P., Stoves, Pipes, Baths, Lamps, and a miscellaneous collection of Hardware of every description will be found.

Birmingham has long been connected with the manufacture of hardware of every kind, to such a degree that the name of the town has often become associated with these articles. Some departments of the trade are likewise vigorously pushed at Wolverhampton, Walsall, and Sheffield; but Birmingham may be legitimately considered as the metropolis for hardwares generally; and the enormous extension of its trade, attributable in a great measure to these manufactures, indicates the momentous results to which the production in quantities of the most trivial objects may give rise. In forty years the population of Birmingham has increased by nearly 150 per cent.; and what is highly instructive and remarkable is the fact that, in proportion to the increase of production has been the decrease of price, until there has been a reduction in the same period of about 62 per cent., and in some articles even to 85 per cent. The exports have likewise immensely increased in the same time: at its commencement they slightly exceeded 5,800 tons annually; in 1849, the exports amounted to 23,421 tons, the value of which has been estimated at about 2,201,315*l.* sterling. This relates merely to the iron manufactures: of the brass and copper manufactures were exported in 1849 to the value of 1,875,865*l.*; and it deserves notice, that the greatest proportion of these manufactures absorbed by any country is that annually imported by Hindostan—a country whose early reputation in metal manufactures is a subject of familiar knowledge.

The system of the manufacture of hardware in Birmingham is peculiar, and presents a striking contrast to that adopted in Manchester and other large manufacturing places—the operatives are themselves the manufacturers. Hiring a workshop in which steam-power is laid on, and which is specially fitted up by the owner of the building, in which many such workshops are contained, the artisan plies his peculiar trade, manufactures his articles, carries them home to the merchant, and receives the weekly payment for them, which enables him to procure fresh materials, and proceed in the ensuing week with his regular labours. A very large proportion of hardwares is thus manufactured. But this system is not universal; and regularly-organized factories, employing a large number of workpeople, and possessing all the distinguishing features of a great producing establishment, exist, and are in active operation. These establishments exhibit their beautiful productions in this Class.

The immense variety of articles included in this Class renders it impossible to refer in a succinct manner to any groups of objects; and this is the less necessary, as such objects must attract the notice they deserve on inspection, and fuller information may be found in this part of the Catalogue.—R. E.

1 HOOD, SAMUEL, 81 Upper Thames Street—Proprietor.

Improved ventilating stable stall, fitted with a cast and wrought iron hay-rack, and with an enamelled cast-iron manger and water-cistern.

Improved stench-trap of enamelled cast-iron.

2 SMALLMAN, SMITH, & Co., Stourbridge—Manufacturers.

Specimens of Wyatt's new patent method of glazing the surfaces of cast-iron articles, pumps, water pipes, cisterns, &c., viz., water-pipe glazed inside; and flanged suction-pipe of pump.

Specimens of glaze upon small pipe; upon a flat surface of cast iron. Cast-iron manger, glazed.

Specimen of fused glass, previous to being ground and mixed for use.

3 CLARKE, G. R., 2 Somerset Place, Kennington—Designer.

Designs for chairs in ornamental iron-work.

4 GUY, S.—Producer.

A variety of horse-shoes.

4A BARROW, —, East Street, Marylebone—Producer.

Patent window-sash.

5 KING, CHARLES, 5 Tunbridge St., New Road, St. Pancras—Designer.

Design for carriage-gates, to be executed in cast-iron; and for stained glass window.

6 PHILLIPS, J. B., Battersea Fields—Designer.

Design for ornamental iron gates, with suitable stone piers, for a park entrance.

7 STEVENS, HENRY ROWE, Newmarket, Cambridgeshire—Manufacturer.

Specimens of horse-shoes for hunters, hacks, racers, and carriage horses.

Narrow hind, fore, and broad plates for race horses, with thin-soled feet.

8 WOODIN, D., 28 Shepherd Street, White Horse Street, Piccadilly.

Patent shoes for horses or other animals, preventing their slipping on wood, ice, or any other surface.

9 MILES, W.—Producer.

Various horse-shoes.

10 WHITEHEAD, JOHN, Oxford Street, Manchester—Inventor and Producer.

Horse-shoes.

11 CHOPPING & MAUND, 370 Oxford Street—Patentees and Manufacturers.

Specimens of Rodway's improved patent concave horse-shoes, to prevent slipping on turf, wooden pavements, &c. Patent machine-made, fullered, and seated horse-shoes. Polished specimens of the same.

12 HOLMES, Captain—Producer.

Improved horse-shoes.

13 FOGARTY, JAMES, Adam Street West, Bryanston Square. Horse-shoes.**15 HILLMAN J., 4 Leaver's Buildings, Glasshouse Yard—Inventor and Manufacturer.**

Concave expansion horse-shoe.

16 COOK, WILLIAM, Willesborough, Ashford, Kent—Manufacturer.

Horse-shoes in general use.

17 PLOMLEY, W., Maidstone—Inventor.

Model of an improved horse-shoe.

18 PEIRCE, W., 38 Loyd Street, Green Heys, Manchester—Inventor and Manufacturer.

Registered letter-copying machines or presses; the required pressure being obtained by means of India-rubber or steel springs.

Model of a window with registered sash-fastener.

19 BAKER, EDWARD BRACKSTONE, 9 Walbrook—Designer and Inventor.

Simple and portable hand-pressure letter-copying machine, called a "manutype." The letter to be copied, together with a damped sheet or sheets of copying paper, are rolled together, with the India-rubber cloth, around the gutta-percha tube, and a very slight pressure of the hand produces a perfect copy: the interior of the tube contains copying ink, pens, and other requisites. Writing and copying paper is rolled round the "manutype," and the whole is enclosed in a small tin case.

20 RUTHVEN, JOHN, New Street, Edinburgh—Inventor and Manufacturer.

Letter-copying press, combining seal press and letter weigher. Its advantages are simplicity, power, and facility, in copying letters or designs; stamping, and other useful applications.

23 SYMES, WILLIAM, 19 Victoria Road, Pimlico—Inventor and Patentee.

Lump-sugar chopping-machines.

25 BARTRUM & PRETYMAN, Brick Hill Lane, Upper Thames Street—Manufacturers.

Wrought copper nails, roves, rivets, and washers.

26 RICHARDSON, ROBERT, 21 Tunbridge Place, New Road—Manufacturer.

Wire netting, to protect gardens and plantations from hares and rabbits; to enclose pheasants and fowls; and as a fence against cats, dogs, sheep, &c.

27 COOMBS, BENJAMIN, & Co., 30 Mark Lane—Manufacturers.

Fine twilled woven wire.

29 WALKER, EDWARD, 6 Cardington Street, Euston Square—Manufacturer.

Specimens of perforated brass, respectively containing eight thousand one hundred, ten thousand, and fourteen thousand four hundred square holes to the square inch; used for drug-grinding, glass-making, black-lead mills, and all purposes where fine powder is required.

30 WILKINS & WEATHERLY, 29 High Street, Wapping—Manufacturers.

Specimens of Smith's patent galvanized and ungalvanized iron and copper wire ropes used for railway inclines, various mining operations, including pit guides, suspension bridges, standing rigging, lightning conductors, window and conservatory sashes, fencing, and sub-marine telegraphs.

[Iron wire ropes are of equal strength with a hempen rope of four times the weight, and resist the wear and tear they are subjected to in "running gear" twice as long. If the surface of a wire-rope be left in any part unprotected by some coating impenetrable to moisture, the internal fibres become in process of time oxidized, and unseen decay goes forward. Iron cleaned by acid and plunged into a bath containing melted zinc, becomes coated with that metal, and the parts left uncoated alone rust. Iron thus treated is said to be "galvanized."—S. C.]

Part of a bar of iron, rolled at Sharp and Brown's mills, Fazeley Street, Birmingham, drawn into wire so fine that it has been formed into a Prince of Wales' plume of feathers.

- 31 **VERE, HENRY HOLTON**, 2 *Aukner Place, Kilburn*—
Designer and Manufacturer.

Improved bird-cage.

- 32 **KUPER, W.**, *Surrey Canal, Cumberwell*—Manufacturer.

Specimens of wire rope, in frame. Specimen of wire rope for suspension bridge; and fitted into pulley blocks. Wire rope jib stay. Specimens of wire rope, fitted with thimbles, &c. Specimens of flat wire rope and wire guides for pits. Galvanized wire strand for fencing. Copper lightning-conductors and sash line.

Specimens of submarine telegraph wire rope. Round wire rope prepared, for use. The improvement is stated to consist in preventing the wires and strands from being twisted on themselves, in the process of laying them round centre cores of hemp; in giving an equal tension to each individual wire; and in preserving the interior surface from corrosion by saturating the cores of hemp with tar, &c.

- 33 **WOODS, W.**, 1 *Queen St., Southwark*—Manufacturer.

Hooks and eyes, for military and naval uniforms, and drapery purposes. Brass chains for lamps and scales.

- 34 **BARNARD & BISHOP**, *Norwich*—Manufacturers.

Ornamental Gothic hinges in wrought iron, with ivy leaf and stalk as a decoration.

Fourteen specimens of galvanized iron wire netting.

- 35 **FOX, THOMAS HENRY**, 44 *Skinner Street*—
Manufacturer.

Ornamental garden arch for training creepers. Wire flower-stands. Wire netting for aviaries, &c., and the exclusion of game. Ornamental bird-cages. Flower-trainers. Wove wire, fly-proof, dish and plate covers. Brass wire hangings, fire guards. Brass and copper wire, and weaving.

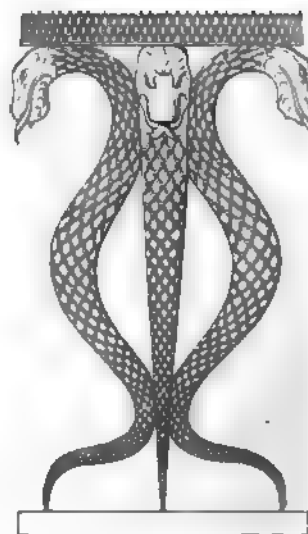
- 36 **NEWALL, R. S., & Co.**, *Gateshead, Newcastle-upon-Tyne*—Inventors and Manufacturers.

Sample of wire strand, used for fencing, signal cord, &c. Sample of wire ropes. Wire rope for suspension bridges; and cable laid wire rope. Wire rope, showing the mode of splicing. Patent wire ropes for submarine telegraph; lightning conductor; copper window sash cord and picture cord. Patent flat wire rope, and guide rope, for coal pits, &c. Rope which has been at work constantly for five years.

- 37 **REYNOLDS, JOHN**, *New Compton Street*.

An ornamental wire flower table.

The accompanying illustration represents this table. The upper part is supported by three serpents of wire, which unite to form the legs of the table.



Reynolds' Wire Flower Table.

- 38 **FLAVEL, SIDNEY**, *Leamington*—Inventor and
Manufacturer.

Patent kitcheners or cooking grates.

This kitchener or cooking grate is remarkable for economy in fuel, having only one small fire placed in the centre, between two large ovens. These ovens can be converted into superior roasters by opening a small valve on the top, when a current of air circulates through the oven, carrying off every portion of steam into the flues. The closets at either end are applicable to keeping viands hot when cooked, or they can be heated for baking pastry, bread, &c. The hot plate on the top is capable of keeping in full work several steam kettles, stewpans, &c., and boiling or frying can be done over the fire at the same time; roasting can also be carried on before the open fire. At the back of the fire is placed a 50-gallon wrought-iron boiler, capable of supplying hot water to the upper part of the house, the draw-off cocks in front, the scullery and stable department if required, and also of supplying a bath placed in any part of the premises. Another feature in this kitchener, is the extreme cleanliness with which the cooking is carried on.

They are manufactured of various sizes.

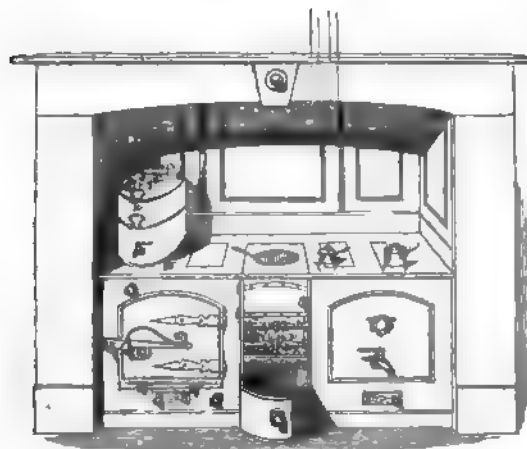


Fig. 1.

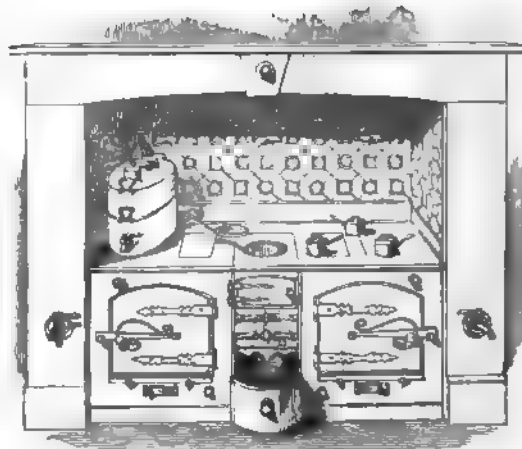


Fig. 2.

Flavel's Kitcheners.

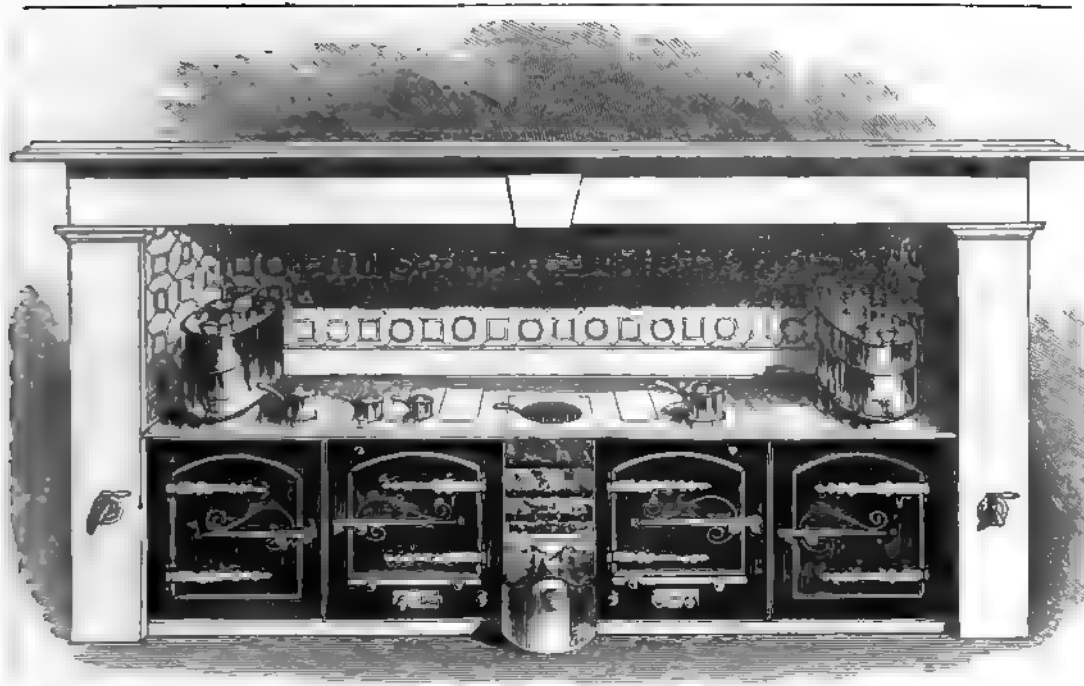


Fig. 3.

Flavel's Kitcheners.

39 GREENING, N., & Sons, Warrington—Manufacturers.

Extra strong wire-cloth, wove by steam-power, for wheat-screen, or drying kiln floor covering malt-kiln floor with only two joinings; for separating minerals, and various other purposes; for rice-polishing machines, &c.; made with flat warp, to increase its durability; for dressing rice, and for various other purposes.

40 GORRIE, THOMAS, Perth—Designer and Manufacturer.

Malleable iron garden chair. Wire-netting, for excluding hares and rabbits from gardens or fields. Land measuring chains with oval rings.

41 LINLEY, THOMAS, & Sons, 34 Stanley Street, Sheffield—Patentees and Manufacturers.

Patent circular double-blast bellows, in iron frame, complete and ready for work, equal in power to 32 long shape bellows, weight 180 lbs. They stand in half the room that long bellows do; effect a saving of twenty per cent. in fuel; every stroke of the lever produces a double quantity and force of blast; support a discharging pipe of double capacity; and iron and steel is brought into a state of fusion, without burning or injuring its properties, in about two thirds of the usual time.

Improved circular bellows, complete, and ready for work; weight 150 lbs.

Patent portable forge circular bellows, with wrought-iron hearth, complete, weight 140 lbs.

Patent and improved portable forge with long bellows, complete; intended specially for the use of emigrants and for exportation, weight 130 lbs. It can be taken to pieces and refixed in a few minutes.

42 GREEN, ABRAHAM, 27 Upper George Street, Edgware Road—Inventor and Manufacturer.

Protective syphon chimney-pot, for the cure of smoky chimneys; intended to create a draught, and prevent the wind blowing down the shaft. Applicable to any chimney.

43 DANNATT, JAMES, Norfolk Street, Sunderland—Inventor and Manufacturer.

Domestic mangle, which is said to possess the following advantages:—great simplicity of construction, not liable

to be deranged, power and efficiency in working, and diminished cost.

45 BRYDEN & Sons, Rose Street, Edinburgh—Inventors and Manufacturers.

An index dial bell with eight indicators, made upon a new and simple plan, by which one bell only is required for any number of apartments.

A manifold bell pull, constructed upon an entirely new plan, by which one pull is made to ring bells in any number of rooms. When the pointer is placed opposite to any name on the dial plate, and the knob pulled out, the bell is then rung in the room indicated.

An improved circular telegraph bell, having two dials, numbered in the same manner, by means of which eight different clerks or workmen may be called.

An air signal mouth-piece and bell. By blowing into the mouth-piece the bell is rung, at any distance less than 1,000 feet. This is an improved method of ringing a bell in places too distant or not suited for working cranks and wires.

A single voice tube mouth-piece and bell-pull. When drawn out, the tube orifice is opened, and the signal bell being rung, the attendant is called to the other end of the tube.

A revolving mouth-piece for voice tubes, with bell-pull combined. Contrived so that one mouth piece connects with six or any greater number of voice tubes, and at the same time with a similar number of bells.

Specimen of a self closing-valve mouth piece for voice tube; and of a spring covered mouth piece for voice tube.

A bank-safe lock. The peculiarity of this lock consists in an extension of the key after it is inserted in the lock, and a secret connection between the interior of the key and two of the players. The two inclined planes on the under side of the wards open or shut the extension of the key as it passes over them; the part of the key thus extended operates on two players placed beyond the reach of picklocks, while, at the same time, the main part of the key works other two players, which are again operated on by the secret apparatus in the interior of the key. This secret apparatus can be removed at pleasure, and the proper key then becomes unfit to work the lock, and all

skeleton keys, however well fitted to pass the wards, will not operate on the players.

Specimens of drawing-room and dining-room lever and draw-out bell-pulls in ordinary use in Scotland.

Specimens of bells, mounted on brass carriages, steel springs, and steel pendulums, with concealed attachments for the wires.

A Venetian blind with a new spring roller.

An improved spring roller sun blind, with patent slip catch.

An improved spring barrel roller blind, with patent slip catch; free from noise when the blind is drawn down, and allowing the barrel to be easily taken down to be cleaned or repaired.

46 STEWART, CHARLES, 40 Bell Street, Edgware Road—
Manufacturer.

A playing ornamental fountain.

51 EDGE, JAMES, Coalpool, Shropshire—Manufacturer.

Model of a pair of pit frames, with barrel and flat chains. Wood and iron keyed flat chains, for pits of various sizes.

Improved straight-sided round chain, for naval and mining purposes. Horn-chain frames.

54 LAWRENCE, T. B. & J., 55 Parliament Street, and
10 Fork Place, Lambeth—Manufacturers.

British zinc ores and zinc first running from the same.

British zinc in ingots as merchandises.

Rolled zinc in sheets, plates, &c., various.

Perforated sheet zinc, for safes, larders, blinds, &c.

British zinc nails, &c.

British zinc in various manufactured articles, forming a small assemblage of the applications of zinc.

[The ease with which zinc can be turned into various forms, has brought the application of this metal into very general use; it is reduced into sheets from strips, by the ordinary process of rolling; when undergoing the same it is heated, but not to a high temperature; in soldering, the seam is touched with muriatic acid (spirit of salt) on the part to be united. Zinc may be drawn into tubes, &c., with facility, and stamped into various shapes.—W. C. A.]

A warming-bath, with iron grate and chimney pillars, and chamber for shower-bath, with brass force for repetition.

A lady's shower-bath, with hip-bath and force-pump.

Antique bath, in imitation of marble.

Knee-bath, with tube to vary temperature.

Hip-bath. Foot-bath, with rest and soap-dish. Sponging-bath. Foot-bath and can, japanned.

Coal-skuttle of British zinc, which has been in use 26 years.

Toilet pail and can. Coal-holding vessels. Closet pail with balance basin. Ice pail, with moveable perforated shelves.

Drawn lengths of rain-pipe. Drawn lengths of rain-shutes or gutters, cornices, &c.

Angles of connection. Cistern heads, or snow-boxes, various. Shoes for the same, various.

Drawn lengths of zinc tubing, for bell-hanging, conducting water, sound, &c. Drawn lengths of zinc window-bar.

Specimens of zinc plate engraving.

[A few years ago an attempt was made to substitute a zinc plate for the lithographic stone. The experiment, can scarcely be characterized as a successful one: the process of drawing the designer's subject was identical with lithography, as also the preparation of the plate for printing.—W. C. A.]

Vases in imitation of choice marble, with rare plants, as Ward's cases.

Lemon-shaped domes of bronzed zinc bar.

Pedestals of white zinc, for the same.

Ward's cases containing suitable plants.

Argonaut shell, suspended with gold wire, in engraved vase, a fac-simile of one in the possession of Her Majesty, with a rare plant in it.

Silver-gilt snuff-box with inscription.

55 TREGGON, H. & W., 22 Jewin Street, and 57
Gracechurch Street—Manufacturers.

Zinc window-blinds, perforated on one piece of metal, with varied designs.

Specimens of ornamental zinc mouldings, cornice, gutters, &c.

Patterns of drawn and moulded zinc bars, of metal sashes, &c.

56 SAYAGE, ROBERT WATSON, 15 St. James's Square—
Inventor.

Springs for all descriptions of doors. Bedstead for invalids.

Alarm bedstead, causing a person to arise at any given hour.

57 SMITH, THOMAS, 1 Lordship Place, Lawrence Street,
Chelsea—Inventor.

Portable folding wrought-iron bedstead.

58 TONKIN, JAMES, 315 Oxford Street—Designer and
Manufacturer.

Ornamented iron bedstead, of the Italian order, with registered spring lath bottom. This bedstead is represented in the annexed cut (p. 599), which exhibits the ornamental character of the bedstead, and the spring lath bottom.

59 COTTAM, EDWARD, 2 Winsley Street, Oxford Street—
Inventor and Manufacturer.

The rheocline, or patent spring bedstead, exhibiting an improved form of spring mattress.

60 STEELE, W. & P., 61 George Street, Edinburgh—
Patentee and Inventor.

Kitchen range for culinary purposes, and apparatus for raising the temperature of water for baths and other uses.

The patent range is constructed, in all its parts, on scientific principles, and contains ample range bars for roasting and boiling, with one or more ovens, and a spacious boiling-table or hot hearth,—all of which are fitted up on the principle of perfect ventilation. A large boiler in the range affords a constant and ample supply of hot water, and is suited to cook by steam; also apparatus which gives the power of heating a reservoir of water at the top of the house, one hundred feet more or less above the level of the kitchen, from which reservoir hot water can be distributed all over the house, and by means of which a bath may be got ready for use at a moment's notice, during any hour of the day, or even at midnight, in cases of sudden indisposition. Means are also provided for effectually and speedily cleansing out the boilers, without further trouble to servants than merely turning one or two stop-cocks, so that hot water may at all times be had free of sediment and perfectly pure. The whole is effected by one open fire, before which meat may be roasted in the usual manner, besides effecting a saving of at least half the quantity of fuel used in apparatus of ordinary construction. This range can be made on a limited or extended scale to suit the accommodation required.

60A PERRY, E., Wolverhampton—Manufacturer.

Specimens of iron and tin ore; common and refined pig iron; bar and sheet iron; bar and sheet iron prepared for tinning; block tin; and tin plates.

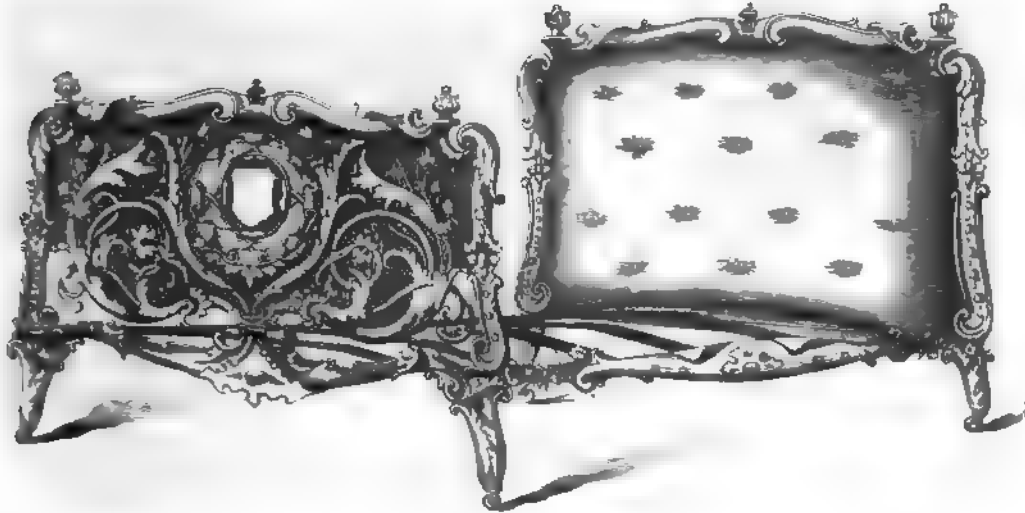
Strong tin ware:—Basting ladles; coffee boilers and pots; cullenders, fish kettles; saucepans, and pans for milk; skimmers; slices; soup ladles and tureens; stew-pans; and tea-kettles, with and without stands.

Planished tin ware:—Bed-airer; bonnets; biscuit pans; cafétières; candlesticks; canisters; oval cheese steamer and toasters; chocolate pots and mill; coffee biggins, boilers, filterers, and pots; covers for plates and dishes; egg poachers, codlers, and ladles; Ftnas, for boiling

water; fish-knife; flour-boxes; graters; hot-water dishes and plate; inhaler; pepper-boxes; slicers; strainers, for milk, gravy, and gruel; moulds; tea extractors, kettles, and pots; warmers, for carriage, for feet, and for stomach; wicker plate-baskets; wine mullers and strainer.

Japanned ware:—baths; bread and cake baskets; boiler fillers; bonnet boxes; botanical boxes; candle boxes and mops; candlesticks; canisters, round and square; cash-boxes; cheese trays; cigar trays; coal scoops, shovels, and

vases; date cases; dressing cases; ewers and basins; fire baskets and screen; gunpowder canister; hearing trumpet; inkstands; jugs; knife trays; lamps; lanterns; leg bath; letter cages; music stand; nursery lamps; plate carriers and warmers; sandwich and spice boxes; spittoons; snuffer trays; sugar-boxes; tables; tea caddies; toast racks; toilette sets; trays; umbrella stands; vegetable warmers; ventilators; waiters; water cans; wax boxes; and writing boxes.



Tonkin's Ornamental Iron Bedstead.

62 COWLEY & JAMES, *Walsall*—Manufacturers.

Patent iron bedsteads, consisting of French half-tester and tant bedsteads. Child's cot in iron and in brass.

Samples of wrought iron gas and steam tubes and joints. One of these bedsteads is shown in the cut, in which its lightness and simplicity are represented.



Cowley and James Patent Iron Bedstead

63 TYLOR & PACE, 313 Oxford Street, and 3 Queen Street, *Cheapside*—Manufacturers.

Specimens of perforated metal sheets. Specimens of patent iron bedsteads, child's cot, common iron stump

bedsteads. French bedsteads, and folding portable bedsteads. The novelty of these articles consists chiefly in the introduction of wrought iron joints and drawn sheet-iron angle rails.

64 PERKES & Co., Emerson Street, Southwark Bridge—Manufacturers.

Patent folding metallic bedstead, which can be used also as a crib, couch, &c. Registered.

65 HILL, EDWARD, & Co., Brierley Hill Iron Works, near Dudley—Manufacturers.

Patent four-post iron bedstead, with pillars of taper iron tubing, &c., japanned fancy bead and foot-rails; and the parts united by ornamental castings.

Patent French bedstead, with foot-rail, pillars of taper iron tubing, &c., fancy japanned and brass mounted.

Patent French bedstead, of solid iron, with fancy bead and foot-rails; and the parts united by ornamental iron castings.

Child's cot, of solid iron, with patent improvements, japanned blue, with brass top.

Patent half-tester cot, of solid iron, with patent improvements and registered safety sides, japanned bamboo.

All the parts fit accurately and can be put up and taken down by one person, without tools, being put together with patent dovetail joints, and fitted with patent iron lath bottoms.

66 SHOOLBRED, LOVERIDGE, & SHOOLBRED, Wolverhampton—Designers and Manufacturers.

Papier maché trays, in various styles. Coal vase, and scoops.

Shower-bath. Windsor hip-bath. Sponge-bath, with various ornaments and improvements. Nursery hand shower-bath.

Beart's patent coffee-pot, electro-plated on tin.

[The principle of pneumatic pressure is involved in the operation of this utensil: the upper portion of the pot may be considered a cylinder, in which moves the coffee-holder, which consists of a piece of cloth strained over what may be called a piston, the action of raising which, produces a partial vacuum, and the coffee is strained by passing through the sieve-like material of which the piston is composed, by atmospheric pressure.—W. C. A.]

Sets of toilet-ware. Wine-cooler. Dish-covers. Tea-pots, coffee-pots, and tea-kettles. Cash, deed, and writing boxes.

Date-dials for libraries, counting-houses, &c.

67 JOHNSON, EDWARD, 160 Piccadilly—Manufacturer.

Iron folding hinged bedsteads, with brass hinges and legs; with pole, having a ring at the top from which the curtains and drapery are suspended, capable of being packed in a small waterproof valise.

68 WHITFIELD, JAMES ALEXANDER, Pelaw Staith, near Gateshead—Inventor.

Improved grappling or dredging-iron, for drawing from the water the bodies of persons apparently drowned.

The improvement consists in its passing over four times the space which the present irons pass over, and in the same time. In case of the hooks fastening at the bottom of the river they will straighten. The hanging-chain with the hooks will detect a body lying behind a rock or large stone. Made to take into pieces, so that it can be easily repaired.

69 WALTON & Co., Wolverhampton—Manufacturers.

Coal vase and scoop; enamelled foot-bath, pail, and sponging and milk-cans; block-tin dish covers; bronzed kettles and stands.

74 STIRK, J., Salop Street, Wolverhampton—Manufacturer.

Engineers' anvil, tinmen's anvil, and smiths' vice.

75 WOOD, GEORGE, THOMAS, WILLIAM, & HENRY, Stourbridge—Manufacturers.

Wrought-iron anvil and vice, for smiths' forge.
Spades and shovels. Scythes and hay knife.
Grafting and draining tools. Pick. Frying-pan.
Link chains used in rigging of vessels, cables, and inclined planes. Swivel, used in chains, to prevent twisting. Shackle, used to unite pieces of chain together.
Anchors. Card of nails.
Screw jack, for lifting wagons, boilers, and weights.
Model:—Winch for ships. Windlass for lifting cables, and steering barrel for vessels.

76 KEEF & WATKIN, Foster's Works, Stourbridge—Manufacturers.

Spades and shovels used in the various counties of the United Kingdom, and in the colonies.
Set of improved cast-steel draining tools.
Round and oval frying-pans. Glaziers' foundry, and cooks' ladles, and tinned iron hand-bowls. Crown and patent garden, bramble, and grass scythes; and hay, chaff, and thatchers' knives.

Specimens of crane and coal chain.
Horse nails. Counter clout nails and coopers' rivets.
Various anvils. Coopers' beak iron and smiths' anvils.
Bright, staple, improved solid worm, screw box, vice, &c.

Best fagotted axle arm moulds, for carts and wagons.
Plough-share, beam, and coulter moulds, for foreign and home markets.

82 HANDYSIDE, ANDREW, Britannia Foundry, Derby—Designer and Manufacturer.

Cast-iron fountain and vases, one a copy of the "Warwick vase."

An ornamental cast-iron vase, bronzed. (Placed in the Main Avenue West.) This vase is represented in the accompanying Plate 60.

Two cast-iron vases, from the Medici vase.
Two Bacchanalian vases, from the antique.
Two antique vases with scrolls.

83 THE BOWLING IRON COMPANY, Bradford, Yorkshire—Producers and Manufacturers.

1. Iron ore, as raised from the ground.
2. Iron ore, calcined, ready for the furnace.
3. Best coal, for smelting the said ore.
4. Coke, produced from the same coal.
5. Pig metal, produced from the same ore, No. 1, No. 2, and No. 3.
6. Refined iron, from said pig metal.
7. Stampings from refined iron No. 6, puddled.
8. Railway wheel-tires, produced from No. 7.
9. Railway wheel tire, bent cold.
10. Railway axles, bent cold.
11. Samples of puddled iron, rolled and punched in different forms.
12. Round iron, tied in knots cold.
13. Marine boilers, flue iron.
14. Cuttings from boiler plates.

84 BATEMAN, JAMES, Rolling and Wire Mills, Low Moor, near Bradford, Yorkshire.

Bloom of iron H. C., produced at East Ries, Norway, and generally used for wire for cards, and other purposes, where great toughness and strength are required.

Billet and wire rod rolled from the same.
Nos. 6, 9, 12, and 19, wire drawn from the same.
Rolled into rods and drawn into wire by the exhibitor.
Various sizes of wire, from No. 24 to No. 38 wires' gauge, drawn from the same.

Various patterns of cards manufactured with the same wire by Daniel Bateman & Sons.

[The origin of the term "bloom" is not very evident; certain it is, that the most ancient iron-works in this country were called "bloomeries," or "bloom-smithies." Blooms are lumps of iron, and are produced in such a way as to ensure great toughness. Such as the one exhibited are usually formed by melting slags in fur-

such a moderated heat that time is allowed for to separate from the silicious matter which the impurities, which then runs down into a are all the particles get agglutinated and form mass, which is removed by a hooked pole in be forged; the formation of each bloom of iron requiring a period of from three to four its production.—R. H.]

DAWSON, & HARDY, Low Moor Iron Works, Bradford—Producers and Manufacturers.

as from the Low Moor Company's mines, near Black ironstone, an argillaceous iron ore, 8 per cent. of pig iron. Requires a limestone bed coal, found immediately under the iron-out 28 inches thick. Better bed coal, found 40 w the former, about 22 inches thick. Speci-Low Moor pig iron, and of wrought iron in apes; some tested by tension and otherwise. h gun of 9 feet 4 inches, weighing 85 cwt., used w shot, shells, grape, and canister shot. The powder is 12 lbs., and reduced charges are used range shells. When fired with a hollow shot of d an elevation of 5°, this gun has a range of ds. Mounted on a carriage (made by Messrs. F. Ferguson, Maat House, Mill Wall, London) and appurtenances, with improvements to faci-orking and training, and checking the recoil, of us. Thirty-two pound gun, of 6 feet, weighing sed with solid shot, shells, grape, and canister e charges of powder vary from 2½ to 4 lbs. arge of 4 lbs., and fired at an elevation of 5°, is 1,500 yards. Mounted on a similar carriage, ide and quarter-deck purposes. ane mill. Cylinders or crushing rolls, 24 inches by 48 inches in length, to be driven by steam wver. Olive mill. Cylinders or crushing rolls, in diameter, by 20 inches in length; to be cattle, steam, or water power. a elliptograph, for drawing ellipses of any pro-om a straight line to a circle.

AS, WILLIAM, 136 High Street, Isle of Wight—Manufacturer.

range, and hot-plate over oven for roasting, aking, and stewing, heated by one fire. Boiler e same, for heating steam-kettles, steam-closet,

ALSON, WILLIAM NEWZAM, Newark-on-Trent—Inventor and Manufacturer.

ge cooking-grate, with improvements, registered hibitor, under the patent of John Leslie, of The improvements claimed consist of a fire-ig, an improved form of fire and range, which e fuel till all is consumed, and slides in grooves o emains of a fire can be cleared out in an instant. ge chamber grate, with similar improvements.

range for farm kitchens, or other large esta-s, with similar registered improvements; and a oven, hot-water boiler, steaming closet, and et. all heated from a fire of moderate size. ng-grate for cottages and emigrants, complete sting, with oven and capacious boiler, the upper rning a hot plate or ironing stove.

zers' cooking-grate, with oven. ing-range for large establishments, forming a stove for roasting, baking, boiling, &c.

suitable for dining-rooms, exhibiting a new on of colour with steel or iron-work.

ght bracket for gas, made of iron, with a er.

al bracket for lights for a baronial hall, manu-fs and polished.

ns of decorative work in wrought and cast-ined.

AS, JOHN, Leominster, Herefordshire—Inventor. of patent inventions, &c.:—Stove for warming ating buildings.

Stove grate for warming and ventilating rooms, &c.

Kiln for drying malt, hops, and other substances.

Machine for separating the parts of hops.

Structure for the better management of farm-yard manure.

89 DULEY, JOHN, Northampton—Inventor and Manufacturer.

Registered self-acting effluvia-trap.

Patent cooking-stove.

90 SHAVE, W. J., 74 Watling Street, Inventor and Manufacturer.

Patent oven, for baking bread, pastry, meats, &c. Exhibited for economy of fuel and time.

91 SHARP, JAMES, Southampton—Inventor and Manufacturer.

Apparatus for cooking by gas a dinner for one hundred persons.

[Dr. Clayton, in 1739, boiled eggs by means of gas; Mr. Murdoch, in 1792, boiled and fried meat by gas; and in 1824 a gas cooking stove was in use at the Etna Iron Works, near Liverpool.—S. C.]

92 KERSLAKE, THOMAS, Exeter—Manufacturer.

Registered boiler for heating churches, mansions, manufactories, &c.

93 HALSTEAD, CHARLES & SONS, Chichester, Sussex—Manufacturers.

Kitchen-range, with mantelpiece, combining all the conveniences of a close range, with a large open roasting fire, large oven and hot plate, and good supply of hot water.

94 KEENE, W., 42 Cornhill, and 19 Harpur Street, Bloomsbury—Inventor.

Registered conducting leaf stove, adapted for heating large apartments in houses exposed to a north-eastern aspect. The difficulty of heating large rooms to a comfortable temperature, in the depth of winter, led to the invention of the stove exhibited. In an apartment almost insensible to the action of the ordinary fire-place, and in which the thermometer indicated but a feeble tendency to rise two hours after fire-lighting, it was affected to the extent of 20 degrees in little more than as many minutes after lighting a fire in the leaf stove. The sensitiveness of the leaves to the diffusion of heat is so great that the combustion of a few shavings or a little paper in the fire-place is immediately and sensibly felt in the apartment. Such a result, obtained not only without any sacrifice of, but in addition to, the comfort of an open fire in the ordinary fire-place, clearly demonstrates the value of the heat which we permit to pass up the chimney. By the leaf stove it is rendered available, and made to circulate in the apartment, or may be shut off at will.

The conducting leaf stove is formed of plates of metal so placed that each one is a conducting leaf, a portion of which goes down, as it were, into contact with the fire, and is exposed to the direct action of the heat. The heat thus received is rapidly distributed over the whole surface of the leaf. When it is desired to take advantage of the heat communicated by conduction, it is only needful to set the valves open, and permit the air to circulate around the leaves; by closing the valves, the circulation is suppressed or modified at pleasure. The rapidity of the conduction of the heat prevents the metal attaining a high temperature. The principle of this stove is to diffuse a large volume of air at a genial temperature by the conducting power of extensive surfaces. In ordinary stoves, masses of metal heat small volumes of air to a high temperature, by which it is rendered unwholesome. This stove and its interior construction are shown in the next page.

The principle of the conducting leaves can be applied in a great variety of forms, and to the construction of

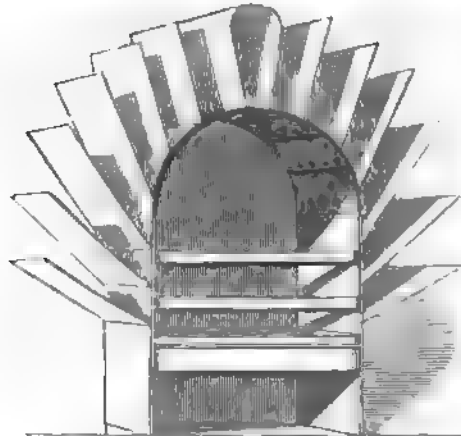
stoves of any size, for heating vestibules, hospital wards, churches, and public buildings generally, and can be kept within the limits needful for the invalid bed-room or smallest apartment.

Fig. 1.



Mr. Keene's Conducting Stove.
A is the valve partly opened. B is the valve shut.

Fig. 2.



Interior of the Stove, showing the Conducting Lenses.

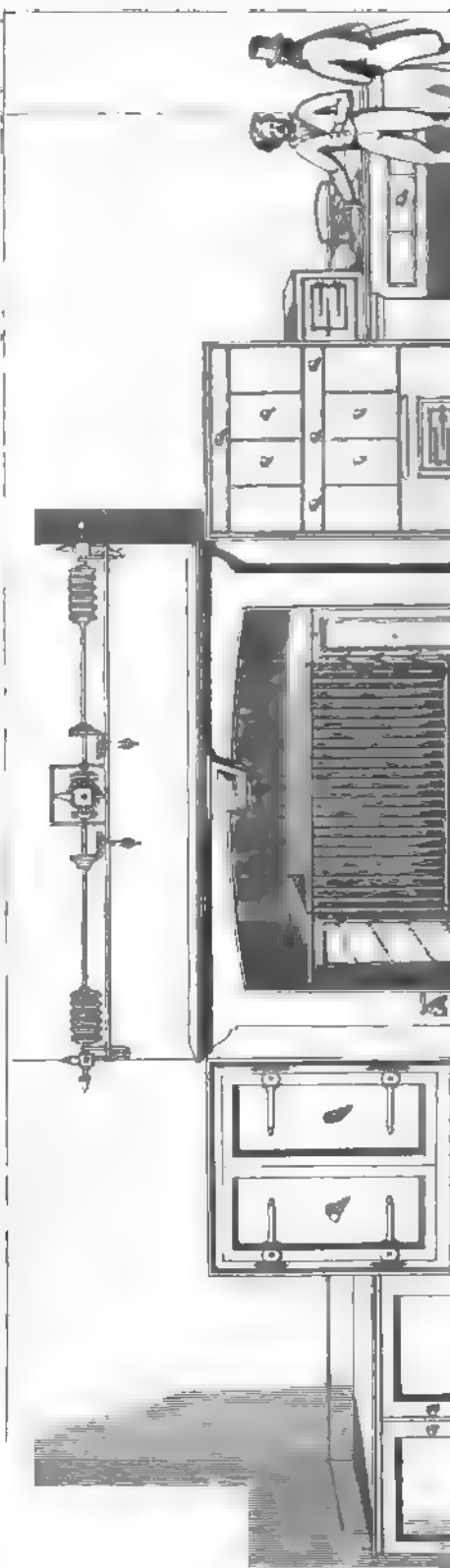
95 POWELL, W.—Inventor.
Portable economical oven.

96 HARPER, A., & SONS, Dudley—Designers and
Manufacturers.
Fender, or-molu mounted. Pierced fire-guard. Kitchen
fender. Best steel fire irons.

96A FIRTH, THOMAS, Eliza Street, Belfast, Ireland—
Proprietor.
Registered model fire-box, with hollow fire bars, for
locomotive and other furnaces.
See also Class 5, No. 472, with cuts.

97 HAYWOOD, JAMES, Derby—Manufacturer.
Burnished steel drawing-room stove, with porcelain
hearth and black marble chimney-piece. Radiating hall-
stove, with hearth-plate. Church-stove.

98 BENHAM & SONS, 19 Wigmore St.—Manufacturers.
Oxford roasting range with radiating back.
Improved Oxford range with oven. Fitted also with
smoke jack, with double outside movement, chains,
cradle, spit, beef and mutton. (See the annexed cut.)



Benham's improved Oxford Range.

L. M. N. O. 18 to 20, & 25 to 27; O. 9, & P. 3 to 29.

A hot-plate and broiling stove, with oven for *æ.*, to be heated by one fire; moveable gridiron, *æ.* stoves; steam-table for dishing up; hot *æ.* folding doors, to be heated by steam or hot *æ.* oven and furnace with closet above; *æ.* for keeping gravies and sauces hot; vegetable *æ.* and trays; steam-kettles, copper brazing-pan, fish-*æ.* stock-pot, and stew-*æ.* pans.

A warm-bath, with cocks and lever handles.

A suspending shower-bath. Portable warm bath. *æ.*'s stove. Shrapnel's new system of bell-hang-*æ.* out wires or cranks. Stove-grates.

GREGORY, T.—Producer.

A 3-room fire-screen.

LLIER, SON, & SNOWDEN, 10 Foster St., Bishopsgate Street—Patentees and Inventors.

A porcelain enamelled coffee-roasting cylinder, lined inside to prevent the possibility of scorching the coffee during roasting, and prevents the *æ.* from imbibing that metallic or vaporous flavour, so complained of in coffee roasted in the ordinary *æ.* iron cylinders. The metal of which these *æ.* are composed is altogether different to any *æ.* employed for that purpose.

A wire cylinder is used for purifying or cleansing *æ.* that has imbibed offensive flavours during *æ.* roasting. It is likewise applied for cooling coffee after *æ.*, by the introduction of atmospheric air; it is *æ.* in a few minutes, and may be packed for any *æ.*, without the essential oil starting from the *æ.* by what is generally known in the trade by the *æ.* roasting.

LESLIE, JOHN, 59 Conduit Street—Inventor, Patentee, and Manufacturer.

A fire-brick grate for drawing-rooms. The back, and sides are of fire-brick, &c., the only admission of air being in front, a more effective combustion of *æ.* is accomplished, whereby greater heat radiates *æ.* room with a saving of 50 per cent. of coals, *æ.* wood.

A fire brick dining-room or library grates, bed-*æ.* rooms, labourers' cottage grates, and oven, boiler, *æ.* heating apparatus for cooking purposes.

A domestic gas purifying apparatus, whereby great *æ.* and economic results are obtained in the *æ.* of gas. Patent gas regulating apparatus, to *æ.* the flow of gas.

A 2 $\frac{1}{2}$ -tube gas burners, with glass combustion *æ.* ers, graduated for given quantities of gas, whereby *æ.* rest amount of light of which the gas is susceptible *æ.* used without changing the burner.

STUART & SMITH, Sheffield—Manufacturers.

Specimens of Sylvester's patent grates, exhibited for *æ.* of principle, design, and workmanship.

A register grate, with a revolving canopy; on a *æ.* principle.

Mantelpieces manufactured by Messrs. Nelson, of *æ.*

Specimens, fire-irons, &c., exhibited as specimens of *æ.* and workmanship.

Ascending and descending air stoves, suitable for *æ.* halls, &c.

A miniature steam-engines, in brass, complete; *æ.* both by steam and clock work. The largest *æ.* 2 $\frac{1}{2}$ ounces, the second only $\frac{3}{4}$ of an ounce, and the *æ.* 1 $\frac{1}{2}$ of an ounce. Made by W. Hurst, Sheffield.

EVANS, JEREMIAH, SON, & Co., 33 King William Street, London Bridge—Manufacturers.

Polished steel drawing-room register stove, fender, *æ.* implements *æ.* suite, mounted with or-molu *æ.* ente.

A kitchen-range, with two wrought iron boilers (for steam and hot water), the hobs and fronts polished, the latter fitted with Berlin black pannels; the bars are bright, vertical, and made to open after the manner of a gate, with two winding cheeks and trevets, made to work in an improved manner.

A broiling-plate, with loose ring tops, made to correspond in style with the range.

A steam hot-closet, with copper shelves, with double doors, finished in same style as range; copper steam-kettles, stewpans, &c.

A complete double oven, with dead sprung fronts, bold O G mouldings, sliding pannel doors; also made to correspond with range.

A smoke-jack, with double outside movement and dangles, adapted to turn six spits, or more.

A highly-finished warm-air stove, black polished, with mermaid ornaments at the corners, ashes-grate and fender, adapted for the state cabin of a ship.

A classic bronzed pedestal lamp, adapted for an entrance hall, with three patent Argand burners and glasses.

A bronzed trophy or shield, with brass ornaments, sword, sword-belt, &c.

Brass and black dogs for wood fires.

Improved kitchener; or cooking apparatus, so arranged as to form either an oven or close fire, with a large roasting oven, wrought iron boiler, &c.

A black register stove, in the Elizabethan style, with fire-brick back, fender and fire furniture to correspond.

A dead-sprung register stove, with canopy of Italian bronze, lizard ornaments, bright bars, &c.

104 MORTON, J., 32 Eyre Street, Sheffield—Manufacturer.

A cast-iron table, with marble top, and an or-molu fender. Berlin and bronze fenders.

105 LONGDEN & Co., Sheffield—Designers and Manufacturers.

Cooking apparatus, adapted for an opening eight feet wide, by five feet high, and containing an open-fire roasting range, with sliding spit-racks and winding cheek or wig-gard; a wrought-iron boiler, holding thirty gallons, prepared for supplying hot water to an upper chamber; a wrought-iron pastry oven, having the top made hotter than the bottom, thereby insuring the pastry being lighter and more wholesome than in ovens on the old principle; a hot hearth, heated by the oven flue, intended for boiling fish and vegetables; three stewing stoves and one oven, to be heated by gas, for boiling, frying, baking, or roasting, which may be regulated at pleasure by the gas cocks. Meat roasted in the gas oven is said not to waste away in the same proportion as when done before the fire, and as the dripping falls upon a cool pan it is not burnt or discoloured, but rendered fit for culinary purposes. The two hot hearths are surrounded by cove plates, which are so arranged as to protect the cook from the heat of the open fire.

Warm-air stove, heated by gas placed in a wrought-iron interior, with escape pipe at back, and having the exterior perforated throughout for the escape of warm air.

Specimen stair balusters and newells, in various styles of ornament.

Gallery front for entrance hall, &c., consisting of a panel in Roman style, surrounded with mahogany rails and pillars. The various scrolls and foliage of this design are carved on both sides, and intertwined with the railing bars, in imitation of a natural growth.

Perforated pedestals for enclosing coils or tiers of pipes, heated by the circulation of hot water, with marble slab at top, used as hall tables, &c.

106 JOHNSON & Co., Sheffield—Manufacturers.

Patent bright steel light and heat reflecting stove-grate, with white marble chimney-piece, overlaid with gilt ornaments in the renaissance style. This grate is

considered to combine economy with powers of heating and ventilation; the reflector is movable upon a slide hinge for ventilation, taking out the ashes, and sweeping the chimney. Suitable for drawing-rooms, &c.

A burnished steel register-stove, with white marble chimney piece; the stove ornamented with twisted steel mouldings, gilt coronet, and silver feathers, and there is also a steel ash-pan fender with polished moulding, and ornaments similar to the stove.

A bright patent air-stove; the design forming a pedestal. Suitable for entrance halls, &c.

Parlour cooking-stove. The advantages of this grate consist in its forming a chimney-piece, with open fire register-grate, and portable oven for cooking. Suitable for cottages, lodging-houses, &c.—Invented by Henry Laxton, architect, 9 Pall Mall East.

106A LAXTON, H., 19 Arundel Street, Strand—Inventor.
Parlour cooking-stove.

107 PIERCE, WILLIAM, 5 Jermyn St.—Designer, Inventor and Manufacturer.

Stove-grate, in the Elizabethan style, with fender and fire-irons *en suite*.

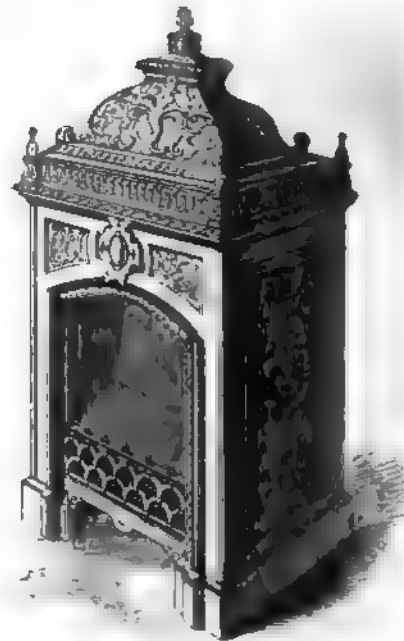
Drawing-room stove-grate, in style of Louis Quatorze.

Chimney-piece of cast iron, enamelled in the enriched style of the period. Fender, in *or-molu*, formed of vine leaves, tendrils, and clusters of grapes, the supports for the fire-irons being branches of the vine with bunches of grapes suspended. Fire-irons *en suite*, of polished steel, having spiral stems, the pan of the shovel engraved, and the *or-molu* heads composed of vine leaves and grapes. This grate is represented in the illustration below.

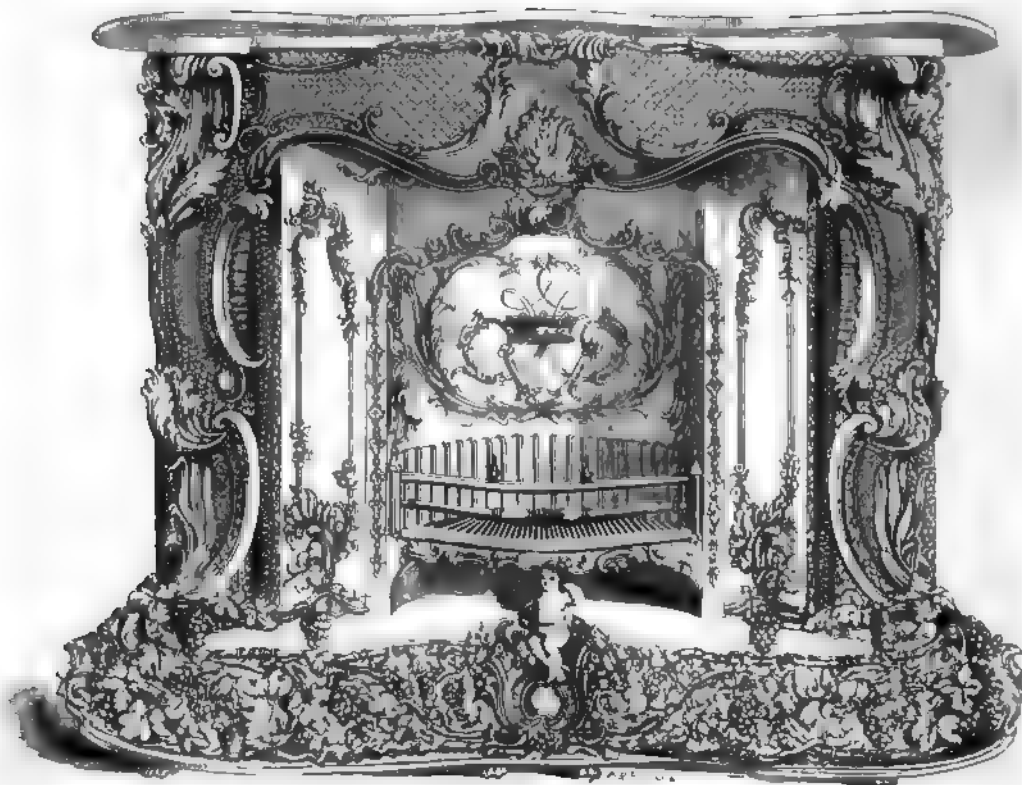
Bevilled register stove grate. Bronzed fender and fire-irons.

Elizabethan chimney-piece, of British alabaster, by Henry Poole, mason; and the hearth of specimens of British marble, the outer border in Sienna.

Registered pyro-pneumatic warming and ventilating stove-grate, suitable for the entrance-hall or staircase of a nobleman's mansion; the outer casing of cast iron, ground, polished, and browned. The interior is of prepared fire-clay, moulded in various pieces. This stove is represented in the following cut.



Pierce's Pyro-Pneumatic Stove-grate.



Pierce's Louis Quatorze Drawing-room Stove-grate.

gothic pattern stove-grate, for a church or school.
Registered cottagers' and other fire-lump grates.

Chased fender, in or-molu; consisting of dogs, stags, and foliage. This fender is represented in the annexed cut.



Pierce's Chased Or-molu Fender.

Drawing-room and other fenders, &c. Antique bronzed pendant bell-handle.

A pair of ornamental fire-dogs. These are shown in the following cuts.



Pierce's Ornamental Fire dogs.

108 **CARR & RILEY, Bailey Lane Works, Sheffield—**
Manufacturers.

Patent double-edge Lewis and spiral machine knives, dressing cloth. Ledger blade, and spring bed to work with the same. Bayonet spiral machine knives.

Circular, frame, and pit saws. Mill saw web. Skin breaking-knife. Machine-knife, for cutting tobacco. Rolling plate and moulding irons. Files, assorted. See List, with views and designs.

109 **JOHNSON, CANNELL, & Co., Cyclops' Steel Works, Sheffield, Yorkshire.—**Manufacturers.

Model of the Cyclops' Works.

Various specimens, illustrative of the conversion of iron into steel, comprising the raw iron, blister-steel, spring and shear-steel, ingot cast-steel, and cast-steel of various kinds, for engineering and mechanical use.

Cast-steel forging of large marine piston-rod.

Cast steel locomotive piston-rod and cover.

Axe, hammer, tool, chisel, tap, die, sheet, pen machine, and other steels.

Specimens of files and rasps, for the use of engineers, machinists, smiths, and saw-makers; cabinet, clock and

watch-makers; silversmiths, jewellers, &c., combining every variety of shape, cut, and dimensions, from one to forty-six inches in length, including the concave and convex file, with continuous tooth, and a silversmiths' rubber, six inches broad, supposed to be the greatest breadth of surface ever cut with the continuous tooth.

Specimens of locomotive engine, and railway-carriage, carriage-truck, horse box, van and waggon, bearing, buffer, and draw springs, with their respective stamps or boxes. Improved springs for traction or buffing, elliptic and spiral.

Springs for road carriages, and various specimens of wrought-iron work, for hanging railway-carriages.

110 **DEARIN, G., & Co., 48 Eyre Street, Sheffield—**
Manufacturers.

Ivory carvers; plated fish carvers. Silver and silver-plated dessert knives, various; round-of-beef slicers, ivory handle, silver ferrule, with a crank in the trowel part, gilt and etched blade.

Ivory, silver, and plated table knives. Silver knife, fork, and spoon, Albert pattern. Ivory game-carvers. Silver cake knife. Ivory and pearl table-knives, silver ferrules, gilt blades.

A silver fish-carver and fork of a new design. These are represented in the annexed cut.



Deakin's Fish-carver and Fork.

110A BROOKES, WM., & SONS, *Sheffield*—Manufacturers.

Emigrants', horticultural, and gentlemen's tool chests, complete, of various sizes.

Canadian and Brazil wedge axes. American and Australian felling, siding, and squaring axes.

Hammers, for various purposes. Axes, hatchets, and stone-picks. Coopers' sharp and nail adze, howell, froe, and driver. Carpenters' and wheelers' adze. Sugar-choppers. Bright choppers.

Cleavers, with iron handle; American cleaver; mincing knives; and cheese knives.

Farmers' chisels and gouges, in cast-steel. Millwrights' chisels and gouges. Turning chisels and gouges. Socket chisels and gouges. Mortice chisels. Plane-irons; plough bits; and moulding-irons.

Spanners, single and double-ended improved shifting screw-keys. Coach wrenches.

Improved cylinder and best double railway wrenches. Screw stocks and dies, with taper and plug taps.

Racket brace; screw plates; spring dividers; and callipers.

Various compasses, pincers, nippers, punches, and plyers, for different purposes.

Pinking irons; sheep-markers; patent saw sets; steak tongs; flesh forks; candle snuffers; and nutcracks.

Garden tools of every description; pruning shears; grape gatherers; avarancaters; pruning scissors; vine scissors; and flower gatherers.

An assortment of table cutlery.

112 MAKIN, WILLIAM, *Attercliffe Steel Works, near Sheffield*—Manufacturer.

Paper-mill rag-engine, with roller-bars and bottom plates, made of the best cast-steel; it is intended to be used for grinding ropes, rags, and other materials into the pulp, employed in the manufacture of paper.

[Rags, rope, &c., or the materials of which paper is made, must be reduced to a state of pulp; to accomplish this there has been many modes devised, but that in which the roller-bars and bottom plates are used, is said to be the best. The intention of the roller-bar, in the first place, is to assist in washing the rags, and secondly, when brought to a nearer connexion with the bottom-plates, which is placed at the bottom of the cistern, to break the fibres, which are then passed away in a filmy state. The water being dissipated, the minute fibres are deposited on a surface or cylinder, and after undergoing the drying process, &c., eventually become paper.—W. C. A.]

Plates of cast-steel, polished on both sides.

Knives for rope and rag-cutting machines; horizontal cutters; doctor blades for paper machine rolls; circular cutters and slitters; crosscutting, bench, and reel knives; rope and rag axes, and choppers of various patterns.

Tobacco-knives; snuff-knives; Miller's refined cast-steel chisels and picks; paper makers' rag-sorting knives, &c.

Samples of blister, bar, shear, and cast-steel, used in the various branches of the manufactures of Sheffield.

Samples of cast-steel, used in the manufacture of wire for needles, hackle-pins, &c., also by engineers, machine-makers, and ironfounders.

113 SPEAR & JACKSON, *Sheffield*—Manufacturers.

Cast-steel circular saw, 5 feet diameter, machine ground and polished. These saws are toothed with a dividing engine which renders them regular on the edge, and are ground and polished by a new machine.

Specimen of a spring steel handsaw, 30 inches long, with polished blade, and French polished ebony handle, German silver electro-plated shield and screws.

Handsaws, and bright, blue, and brass backsaws, with polished blades, French-polished handles of various kinds of wood, and German silver, brass, or polished iron screws; mill-saws, pitsaws, crosscut saws, segment, and other kinds suitable for the home and foreign markets.

Ledger blades and spiral cutters for shearing cloth; sheep slitting knives, hay and straw knives; tanners and curriers' knives; and paper knives. Files and rasps.

Specimen of an American wedge axe, with solid steel edge, and French polished rosewood handle.

Edge tools, including axes, adzes, augers, mill chisels, carpenters' chisels and gouges, and tools used by builders, joiners, carpenters, shipwrights, coopers, &c.

Polished cast-steel plate for engravers.

Specimens of cast steel in bars.

114 FENNEY, FRED., *Sheffield*—Manufacturer.

Razors of different qualities, including specimens of the best work in carving, grinding, and embossing; new in pattern and design.

Mother-of-pearl show-razor, the blade embossed with scroll ornaments and Sheffield arms; carved and set in silver: the work on the blade was cut by the grindstone.

Specimen, showing the different stages of the manufacture of the blade, all contained in one solid piece of cast-steel, with carved mother-of-pearl handle.

115 COCKER, SAMUEL, & SON, *The Porter Steel Works, Sheffield*—Manufacturers.

Steel suitable for all purposes, from one-sixteenth of an inch and larger. Cast-steel files, of warranted quality, from 1 inch to 40 inches long, for mechanical purposes, watch and clock makers, dentists, &c. A large octagonal file, displaying on its surface sixteen different cuts in general use; also a bar of steel, showing the various

stages of file manufacture from the ingot of steel to the finished file. Circular machine files for sharpening saws. Registered circular file or cutter, for filing plane surfaces, to be attached to machine-power, suitable for filing brass, steel, iron, ivory, &c. Cast-steel wire of every description, from the hair-spring to 1½-inch diameter, being the largest size ever drawn. Needles, in their various stages of manufacture, from the bar iron, as imported from Sweden, to the finished needle. Sundry specimens of hickles and gills, wool-combers' broaches, edge tools, saws, mill-picks, and chisels. Wire-drawing plates, of a peculiar quality of steel, made only by the exhibitors; and a variety of other articles.

116 HARGREAVES, WILLIAM, & Co., Sheffield—Manufacturers.

Coromandel-wood case, lined with crimson silk velvet, containing 12 table-knives, 12 dessert knives, and 1 pair of carvers—all with carved ivory handles, of three various designs, silver ferrules, and highly-polished steel blades.

Table-knives, with ivory handles and silver ferrules, intended for general use.

Table-knives, with fancy wood handles, made for the North American market.

Round-of-beef carvers, with stag-horn handles, silver caps and ferrules, and highly-polished steel blades.

Game carvers, with carved ivory handles, silver ferrules, and similar blades.

Bread knife, with carved ivory-handles, silver ferrule, and highly-polished steel blade.

117 TURNER, THOMAS, & Co., Suffolk Works, Sheffield—Manufacturers.

Pair of Albert venison carvers, 6 feet long, with stag antlers.

Round-of-beef slicers, 30 inches long, and trowelled stag-slicers.

Cases of carved ivory table cutlery, also of ivory and pearl silver desserts.

Table cutlery and plated on steel desserts.

A variety of carvers, steels, vegetable-forks, cheese scoops, butchers' knives, palette knives, glaziers' knives, cooks' knives, &c.

The Prince of Wales's sailor's knife, 6 feet long. Gardeners' cutlery and sportsmen's knives.

The Cambrian razor, with a view of the "Suffolk Works," Sheffield, engraved on the ivory haft; and patterns of razors.

Sportsmen's knives in pearl, &c. Various patterns of pocket and penknives.

Stone-saw, used for cutting Bath and other freestone. Circular, hand, and back-saws, &c.

Card of files, such as are in general use.

118 ALGOR, J., 105 Eldon Street, Sheffield—Manufacturer.

Knives for shoemakers, clickers, and curriers; shoemakers' and American peg-knives; farriers' and German saddlers' knives; German shoe-knife.

Joiners' and cabinet-makers' blades.

Shoemakers' and curriers' steels.

Saddlers' half-moon knife; Russian shoemakers' knives.

Knives for coopers, painters, and glaziers.

Plumbers' shave hook. Butchers' knives.

Bread knife; Newfoundland fishknives.

Basketmakers' knives and bodkins.

Cooks' knives; palette knives. Butchers' steel.

119 PARKIN & MARSHALL, Telegraph Works, Sheffield—Manufacturers.

Table and dessert knives, with carvers, fluted pearl handles, silver ferrules, and polished blades.

Fish-carvers: with the blade in open work ornamented with appropriate emblems, and forks to correspond.

Case of fish-carvers: with shark design.

Pair of melon-carvers, with blade of new design, and fluted pearl handles.

Trays of plated-on-steel desserts, in carved pearl handles with silver ferrules, with the blades chased and ornamented.

Tray of plated desserts, with fluted ivory handles, and silver ferrules.

An assortment of bread knives, with carved handles in ivory and wood.

Large slicers. Trowel hand slicers. A varied assortment of table-knives, carvers, &c.

120 ELLIN, T., & Co., Sheffield—Manufacturers.

Shoemakers' knives, with common and rosewood handles, in various sizes.

Glaziers' knives, with cocoa handles. Painters' stopping-knife, with ebony handles. Oyster knives. Farriers' paring knife.

Table knife, with ox-bone handle, and "common point," being the shape used fifty years ago.

The original "Sheffield Whittle." Oyster knife, Billingsgate pattern. Leather-cutter's knife, with wooden handle. Root knife, with cocoa handle.

Carving-knife and fork, self-horn handles. Carving knives; bread, spear and cut-point knives; of various sizes, and handles of different kinds.

Table knives and forks, with mother-of-pearl, ivory, ebony, horn, cocoa, and bone handles.

Steels, with black horn, stag, self, and ivory handles.

Cork and pallet knives. Butchers' steels and knives.

Office knives, with cocoa and ivory handles.

Round-of-beef slicers, with buck, stag, and horn handles.

Carving-knife, 24-inch blade; with strong horn handle.

121 OLIVER, WM., Sheffield—Manufacturer.

Case of cutlery, consisting of forty pieces of miniature cutlery, from 3-8ths of an inch to 4 inches: the smallest pair will go through an ordinary tobacco-pipe. Silver pistol.

Handle table-knives, as manufactured in 1800, green ivory, round point; handle table-knives, as manufactured in 1750. Venison-carvers, and steel, set in elephants' tusks of miniature size. Jones's patent game-carvers, and steel, set in fawn's feet, mounted in silver.

122 WILKINSON, WILLIAM, & SON, Grimesthorpe, Sheffield—Manufacturers.

Sheep and horse shears.

Shears for gloves, thatchers, and weavers.

123 GILBERT BROTHERS, Sheffield—Manufacturers.

A variety of superior razors.

124 STEER & WEBSTER, Castle Hill Works, Sheffield—Manufacturers.

Gold and silver scissors; surgeons' scissors; and a variety of scissors in general use.

Tailors' shears; cases holding scissors.

Nippers (champagne and nail).

Horticultural tools, such as garden and slide pruning-shears.

125 WOSTENHOLM, G., Washington Works, Sheffield—Manufacturer.

A variety of cutlery.

126 WHITELEY, ELIZABETH, 12 Norwich Street, Sheffield Park—Manufacturer.

Fine cast-steel scissors.

127 SHEARER, JOHN, Eldon Street, Sheffield—Manufacturer.

Shears, polished and bronzed, viz., sheep, of new Australian, Leicester Tomlins, and midland county patterns; horse, Newmarket best; glove, for the trade; and weavers', for the home and American markets.

Weaver's knife and nipper, and single nipper.

[The latter are used by weavers for removing, joining, clipping, and picking out ends, &c., which arise by

breaking or joining of threads in the process of weaving.—W. C. A.]

Pair of best polished gilt trowel-shank sheep-shears, in miniature; having within the shanks boxes which contain seven articles each, miniatures of trowel-shanks, three pairs, and other kinds of sheep-shears, one pair each of weavers' shears, burling-iron, knife-nipper, and single picker; there are also four articles contained in the backs, miniatures of different patterns of sheep-shears, two in each back; yet the weight of the whole combined does not exceed 17½ ounces.

128 MARPLES, ROBERT, *Sheffield*—Manufacturer.

Centre-bit, 9-inch. Best plated square, 24-inch. Set of forty-two bright brace-bits. Best ebony and horn pricker-pads, with eight tools each. Best mitre-square, 8-inch.

Best London pattern turnscraws, ebony, and oval handle, 5 inches each. Gentleman's turnscraw. Improved sliding T bevil. Best plated square, 3-inch. Best ebony saw-pad; small boxwood saw-pad.

Best handled saw-set. Best plated spirit-level, 8-inch. Best screw-slide mortice-gauge. Saw and frame. Plated and ebony, ebony circular, London pattern, boxwood, and best screwed and plated spokeshaves.

Improved plated brace, boxwood. Registered self-acting brace, inlaid with pearl. Newly-invented lever-brace, beech-wood, plated. Best shell-gimlet. Patent screw and improved auger gimlets.

129 TAYLOR, HENRY, 105 *Fitzwilliam Street, Sheffield*—Manufacturer.

Tools for engravers, carvers, and print-cutters. Bur-nishers and scrapers.

Hand-drawn steel. Fancy turning and plasterers' moulding tools. Sail-makers' needles. Sculptors' chisels. Screw-tools. Sticking-knife.

130 HOLMES, C., 90 *Wellington Street, Sheffield*—Designer and Manufacturer.

Specimens of table knives.

New registered bolster.

131 HARDY, ROBERT E., *Burmhall Street, Sheffield*—Manufacturer.

Carved bread and plated dessert knives.

Nut-picks and instruments for ladies' work.

Boxes and gentlemen's dressing cases.

132 MARTIN, STEPHEN, 29 *Norfolk Street, Sheffield*—Manufacturer.

Specimens of various kinds of razors, manufactured from Sheffield steel, in a variety of handles, viz., pearl, tortoiseshell, ivory, bone, horn, hoof, &c., plain and ornamented, from one to sets of seven, on cards, and in various boxes.

133 NEWBOULD & OWEN, *Sheffield*—Manufacturers.

Samples of best steel polished goods, including new and improved scissors for tailors, paper-hangers, barbers, horse-trimmers, pruners, &c.

133A NEWBOULD & BILDON, *Surrey Works, Sheffield*—Manufacturers.

Specimens of Roberts' patent table-cutlery. The blades are fastened by means of a dovetail, without cement, and cannot be injured by hot water.

Specimens of registered ivory-handled table-knives. The tangs are made square, and nicely fitted into the handles, without cement, and riveted through at the extremity.

Specimens of table-knives with silver handles.

134 WINKS, BENJAMIN, & SONS, *Sheffield*—Manufacturers.

Samples of razors and table-knives.

Samples of two and four razors in cases.

135 HAWCROFT, WILLIAM, & SONS, *Sheffield*—Manufacturers.

Razors, with ivory, pearl, and tortoiseshell handles.

Cases of razors. Articles, illustrative of the process of manufacture.

Large show-razor, embellished with the figures of Peace and Plenty, and the Royal, Sheffield, and Cutlers' Arms.

136 JONES, JOHN, *West Field Terrace, Sheffield*—Inventor, Patentee, and Manufacturer.

Improved dinner-knife and carvers, with a new form of blade, the whole length of which can be made use of.

Rust-preventive composition, for the preservation of table-knives, fire-irons, fenders, machinery, and military stores.

Specimens of steel goods which were exposed to the open air for six days and nights, the bright parts having been protected with the rust-preventive composition.

137 NICHOLSON, WILLIAM, 17 *Sycamore Street, Sheffield*—Manufacturer.

Knives with carved profiles of the Royal Family. Single and double-blade penknives. American daggers and spear knives. Wharnccliffe, Norfolk, and Congress knives. American cotton-knives. Improved American hunting-knives, &c.

138 JOURNEYMEN FILE-MAKERS OF SHEFFIELD—Producers.

Files and rasps of various sorts and sizes, suitable for mechanics, engineers, &c.

Large file, 54 inches long, cut after the form and manner in which files are generally done, to show the various forms of light and shade. Designed and executed by Hiram Younge, of Sheffield.

[File-making is a manufacture which is still in a great measure confined to Sheffield. It is peculiar that hitherto no machine has been constructed capable of producing files which rival those cut by the human hand. Machine-made files have not the "bite" which hand-cut files have: this is accounted for by the peculiar facilities of the human wrist to accommodate itself to the particular angle suitable to produce the proper "cut." "Small files are made out of best cast-steel; those of a larger size from ordinary steel; flat files are forged on an ordinary study. Other forms on bolsters, with the indentature corresponding to the shape required being thereon impressed, a chisel wider than the blank to be cut is used as the only instrument to form the teeth: it is moved by the hand with the greatest nicety. After cutting, and previous to hardening, the file is immersed in some adhesive substance, such as ale-grounds, in which salt has been dissolved: this protects the teeth from the direct action of the fire; it is then immersed perpendicularly in water; cleansed by finishing."—W. C. A.]

139 MAPPIN & BROTHERS, *Sheffield and London*—Manufacturers.

Sportsman's knife, in pearl, gold-mounted. Exhibited for workmanship. Sportsmen's hunting, angling, and pistol knives. American hunting and dagger knives. Wharnccliffe, Norfolk, Rutland, Richmond, Eglinton, and Vernon knives. Ladies' and gentlemen's pen and pocket knives of every variety. Machines for making pens, adapted to every style of writing. Gardeners' pruning, grafting, and budding knives. Paper-folding knives.

urers, in silver, plated, and electro-gilt, designed Italian and Grecian styles of ornament.
pearl, and ivory handled dessert-knives and th silver and plated blades, chased.
cutlery, with handles of silver, ivory, plated, silver, self-tip, black tip, bone, stag, porcelain, &c. Carving and alicing knives and forks.
sharpening instruments, cheese-scoops, palette-looks' and butter knives.
l-wood bread platters, with suitable designs and knives, with carved and fluted ivory and wood

sens of the registered lancet-edge razor: exhibited and durable edge. Specimens of the army and or.
glish, concave, guard, and Indian steel razors, 1-day razors in cases.
nail, and cutting-out scissors, paper-lamp, prun-horse scissors; also, scissors for drapers, tailors, lies' fancy-work scissors.

COLE, ROBSON, & HOOLE, *Green Lane Works, Sheffield*—Manufacturers.

register-stoves, with burnished steel and or-uldings; the same, fitted with a porcelain and arth-plate, forming a fender.
on register-stove and mantelpiece, with or-molu g; the iron left in its natural state, and secured t.
register-stove, with or-molu, hollow, and bronzed ta.
hed steel register-stove, with figures and or-molu ga. Register-stove in cast-iron; the same stoves g to Stephens' patent.
hed steel register stove, with or-molu spandrils ldings.
register-stove and chimney-piece, with or-molu gs and cast-iron spandrils, as taken from the t secured from rust.
register-stove, with stamped burnished steel ta. Register stoves with porcelain cheeks.
on register-stove, invented and registered by ilay, Buchanan Street, Glasgow, for curing smoky s, and economising the consumption of fuel.
register-stove in cast-iron. Ornamental hot-air stove.
hed steel fenders, with metal and or-molu ra. Bronzed fender, with steel mountings. Dead ug steel fenders, with stamped burnished steel ta. Bronzed, black, and cast-iron fenders.
sens of ornamental castings.

CLAYTON, GEORGE, *5 Love Street, Sheffield*—Manufacturer.

sens of table cutlery in black tip, self-tip, white erman silver, ivory, and plated on steel in ivory l handles.
e bread-knife.

ACSHAW, WILLIAM, *37 Spring Street, Sheffield*—Manufacturer.
ment of fine penknives.

BARGE, HENRY, *Low Street, Sheffield*—Manufacturer.

tion of pocket-knives, of various styles, with orna-andles in ivory, pearl, stag, &c.
can hunting-knives, &c.

BRIGGS, S., *186 Solly Street, Sheffield*—Manufacturer.

akers' awls and tacks, for basket, mattress, and rs; sacking and saddlers' needles, &c.
inders' or printers' bodkins.
s' improved brad-awls and punches; cabinet-improved awls.

Centre and other punches. Shoemakers' pegging awls, feathered; birdcage-makers' and various other awls.

Packing-needles, polished.

Gentlemen's portable hand-pad, complete with bits.

Shoemakers' awl-blades, blued; improved, or French pattern; French, or 4-square; Liverpool, or flat points; portable, and in self-tip handle, complete with awls.

Curriers' steels, handled.

Nut-picker, ivory-handled, round rim, and self-tip, plain.

American socket-vice, improved for pegged boots and shoes.

146 HARDY, T., *9 Moore Street, Sheffield*—Manufacturer.

Stilettoes, crochet-needles, button hooks, nail files, corkscrews, tweezers, boot hooks, &c., in pearl, ivory, tortoiseshell, stag, polished steel handles, for fitting up ladies' work-boxes, companions, gentlemen's dressing cases, &c.

147 SELLERS, JOHN, *Sheffield*—Manufacturer.

Razors, and cases of razors. Fine penknives, Wharn-cliffe and Congress knives.

Pocket and sportsmen's knives, including "The Hare-wood knife," "Norfolk knife," "Rutland knife," "Walton fishing-knife," "Wilkinson knife," &c.

Surgeons' cutting instruments. Tools for the use of engravers on steel and copper. Pen-making machines.

Steel plate for the use of engravers, machine-ruled, by C. Mottram, Esq., of London. The sky tint upon this plate is perhaps the most severe test to which a steel plate can be subjected; the surface is free from spots or seams; and it is exhibited to show that steel is well adapted to the wants of the etcher and engraver.

Proof impression from the plate on India paper.

[An entire change in engraving has taken place by the substitution of steel for copper plates. An engraving made upon copper is speedily rendered useless by the process of inking, and the friction necessary to remove the superfluous ink. The rubbing with whitening to clean the face of the plate, wears away the surface, and renders it valueless after a few thousand impressions. This is not the case with a steel plate; an instance is on record where 500,000 copies were printed from one plate.

The Queen's head on the postage stamp has been only once engraved. It had, in 1842, been multiplied 6,000 times, that is to say, the original produced 6,000 plates, which printed all the postage stamps of the above kind which had been used since the introduction of Rowland Hill's measure up to the period stated.

The multiplication of a steel plate is a feature of some importance: a plate is engraved and hardened; from this an impression is taken upon a softened steel roller; this steel roller is then hardened, and softened steel plates being passed under it, an impression is imparted to them; they are in turn hardened, and are equal to the original as to their impressions. This method is adopted in bank-note engraving; and the postage-stamp plates are produced by the same means.—W. C. A.]

149 NOWILL, JOHN, & SONS, *Sheffield*—Manufacturers.

Assortment of knives for the Levant trade.

Assortment of cutlery, comprising ladies' and gentlemen's pen and pocket knives.

A similar assortment mounted in gold and silver.

Paper folding-knives. Sporting-knives.

Indian hunting-knives. Silver fruit-knives.

Case of carved pearl plated dessert knives and forks.

Nail knives and nail files. Fittings for gentlemen's dressing-cases, ladies' companions, &c.

German smoking knives. Pen-machine knives. Pencil-knives.

Glaxiers' ivory diamond-holders, registered by W. Harris, January, 1845.

Solid ivory handle, containing pencil and penholder, with silver cigar-holder, toothpick, and nail-cleaner, erasing-blade and nail-file, and four pen-blades, put together without a rivet being visible.

Solid ivory handle pen-knife, with slide pencil and penholder.

Coromandel-wood cases of ladies' and gentlemen's toilet cutlery.

Case containing silver dessert knife, fork, and spoon.

Cases containing two, three, four, and seven razors each.

Assortment of razors in ivory, pearl, and tortoiseshell handles.

Pair of razors in pearl handles, framed with silver, and the cutlery's arms carved in relief on the handles.

150 ARMITAGE, M. & H., Mousehole Forge, near Sheffield
—Manufacturers.

Engineers', coachsmiths', and boilermakers' anvils. Double piked smiths' anvil. Double arched jobbing anvil. Sawsmiths' anvil. Pattern anvils.

Set of grinders' screws and plates. Smiths' vice. Pattern smiths' vice. Sawsmiths' vice.

Large water tue-iron. Pattern water tue-iron.

Sledge hammer. Smiths' hand hammer. Cross and straight pealed hand hammers.

Engineers' and millwrights' hammers, different kinds.

Joiners' claw hammer. Masons' tools of different kinds.

151 ELLIOT, J., Townhead Street, Sheffield—
Manufacturer.

Pattern razors, manufactured of the best steel, exhibited for temper, design, and workmanship.

Frame-back razor, ground exceedingly thin, and cannot require to be again ground, thus retaining a fine and durable edge, and increasing greatly the ease of shaving. The gold, silver, steel, German-silver, or brass backs, form an elegant contrast to the blade, and enhance the beauty of appearance as well as afford more opportunity for originality of design and skill in execution.

Pearl-tang razor, constructed to prevent rust.

Razors with hollow-ground blades are especially designed for barbers' use. These do not require to be again ground, on account of their extreme thinness.

[Two workmen are always engaged in razor-making. The rod of steel of which they are made is about half an inch in breadth, and of sufficient thickness to form the back. The stake upon which they are forged is rounded on both sides of the top, which is instrumental in thinning the edge, and much facilitates the operation of grinding. The blades are then hardened and tempered in the ordinary way, with the exception, that they are placed on their back on an iron plate, and the moment they assume a straw colour of a deep shade they are removed.

The grinding follows, on a stone revolving in water; then glazing on a wooden disc. The fine polish is given by a wooden wheel, having its circumference covered with buff leather, which is covered with crocus. The ornamentation of the blade, by etching with acid, and gilding, if such is required, is the last process.—W. C. A.]

Scales with registering dial.

154 WEBSTER, GEORGE, Howard Street, Sheffield—
Manufacturer.

Razors exhibited for quality and workmanship. Registered double-edged razor.

155 LEDGER, C., 83 Carver Street, Sheffield—Inventor
and Manufacturer.

Various razors, including glazed and polished tanged; curiosity razor, shuts backwards, and when shut the blade is entirely encased; black and ivory-handled portables;

black-handled full sized concave and "long cut;" ivory-handled concave "flat tang" and "long cut;" ivory-handled tastefully ground fancy concave and "long cut."

Table-knives "bolster" balanced; black tip ivory and silver plated handled "half Waterloo," with moulded fluted new pattern "bolster" balanced; ivory-handled "flat top hollow" table-knives; "oval bolster" and "Waterloo bolster" balanced; self-tip and ivory-handled, with "half Waterloo" double thread hollow "moulded" new pattern "bolster;" black tip-handled, with eight square four threaded new pattern "bolster" balanced; self-tip and ivory-handled, with half Waterloo flat top fluted new pattern bolster; silver-plated dessert knives, with registered emblematical design handle, and chased blades; pearl-handled plated dessert knife, with emblematical ferrule.

[By "balanced" is meant the handle counter-balancing the blade, thereby lifting it up from the table.—W. C. A.]

156 ELLIS, I., 188 West Street, Glossop Road, Sheffield
—Manufacturer.

Card of razors, manufactured from the best steel.

Table knives; butchers', pallet, putty, and stopping knives.

157 DEAKIN, G., 83 Arundel Street, Sheffield—Inventor
and Manufacturer.

Scissors of various patterns, with bent blades and handles, intended for clipping horses, with gutta percha covering the bows, whereby they are not liable to gall; scissors with bows covered with leather; and without covering.

Horse-clipping and trimming scissors, having the bows covered with an elastic composition, to save the hand. Scissors with the bows and handles covered with the elastic composition.

Elastic metallic combs, of different patterns and kinds, used in clipping and trimming horses.

Lamps for singeing horses, after clipping.

Tailors' shears, possessing power in cutting, ease for the hand, and durability. Forged or wrought solid.

158 SLAGG, HERBERT WEST, Fird, near Chesterfield,
Derbyshire—Designer and Manufacturer.

Reaping hooks, sickles, and scythes for cutting corn, grass, &c.:—

1. For the neighbourhood of London, Surrey, Hampshire, Dorchester, Berks, and Bucks.
2. Wales and Salop.
3. Staffordshire and Cheshire.
4. Isle of Wight.
5. North of England.
6. Sussex, Surrey, and the United States.
7. Berks, Bucks, Kent, Surrey, Hants, and Canada.
8. Lincolnshire, Norfolk, and Cambridgeshire.
9. Indies and America, for cutting indigo.
10. Cornwall, Guernsey, and Jersey.
11. Norfolk, Lincolnshire, and Cambridgeshire.
12. Scotland.
13. Cutting garden-hedges.
14. Sussex and Surrey.
15. Yorkshire and North of England.
16. Indies.
17. Cutting beans.
18. Thatcher's knife.
19. Spain.
20. Yorkshire and North of England.
21. Leicestershire, Northamptonshire, Worcestershire, Notts, Berks, and Bucks.
22. Staffordshire, Worcestershire, Warwickshire, and Canada.
23. Ireland, South.
24. Ireland, North.
25. Hertfordshire, Cambridgeshire, Cheshire, and Beds.
26. Beds and Hertfordshire.
27. Australia.
28. Kent.
29. Poland.
30. Russia.
31. Holland and the Cape of Good Hope.
32. United States.
33. Sussex.
34. Ireland.
35. Cutting and cleaning hedges.
36. Patent scythes.
37. Crown, or hammered.

The novelty is in the formation, easy and improved handles, suitable grinding, and the general completion. The reaping and bagging hooks are made of cast-steel.

159 UNWIN & ROGERS, Rockingham Works, 124
Rockingham St., Sheffield—Manufacturers.

Bowie knives, American and Indian hunting knives. Lock, sneck, dagger, or dirk knives, suitable for the Continent and South America. Pistol knives, in a variety of handles, with single and double barrels.

Pencil knives, of registered patterns, and various other kinds, with pearl, tortoise-shell, and other handles. Cigar knives, of registered and other patterns. Sportsman's knives in great variety. Desk knives, with folders and cutting blades. Comb knives, with pencil, six-inch rule, and other articles.

Knife, fork, and spoon knives, in cases and rolls. Garden knives, with vine, pruners, saws, budding blades, &c.

Pen-machine knives of all kinds. Scissor knives of various sorts. Fly-open knives, with and without guards. Sailors' knives, with copper swivels. Pen and pocket knives.

Razors of fine quality in mother-of-pearl, tortoise-shell, ivory, and other handles. Lancets and farriers' knives.

Flams for bleeding cattle; various blades in brass and other handles.

Nail files, button hooks, and various fancy articles, for ladies' companions and gentlemen's dressing-cases.

160 MARRIOTT & ATKINSON, Fitzalan Works, Sheffield—Manufacturers.

- | | |
|--|---|
| 1 to 65. Various files and rasps, of different sizes, and for a variety of purposes. | 79 Round cast steel for spindles. |
| 66 and 67. Steel moulds for files. | 80 Square cast steel for tools. |
| 68 Forged blank for file. | Model springs, viz.:— |
| 69 Forged blank for file, lighted. | 81 Locomotive engine. |
| 70 Groomed blank for file. | 82 Dray. |
| 71 Cut file. | 83 Railway waggon. |
| 72 Finished file. | 84 Railway first-class carriage. |
| 73 Bar iron. | 85 Elliptic, for carriage. |
| 74 Bar or blister steel. | 86 Gig or light cart. |
| 75 Cast-steel ingot. | 87 Model file, 20 inches long, divided into compartments of the various descriptions of teeth required for files and rasps. Supported by two pedestals on a plateau of burnished cast steel, containing a view of Fitzalan Works. |
| 76 Rolled bar steel, for coach springs. | |
| 77 Double shear steel. | |
| 78 Oval cast steel, for chisels. | |

160A FEARNCOMBE, H., Wolverhampton—Manufacturer.

Portable wash-stands, grained mahogany, painted, veined imitation Sienna marble. Coal vases, flat top, painted hawking-party, nautilus shell, &c. Oval dish-covers. Tea-trays, painted, and Elizabethan. Copper bronze kettles, stands, and lamp. Spittoons. Ewers and basins. Revolving and perpetual almanacks. Date indicator. Hot-water jug. Tea caddies. Coffee-pot, boiler, and filter. Tureen. Hot-water dish and cover. Dressing-case. Some of these articles are registered.

162 MARSH BROTHERS & Co., Sheffield—Manufacturers.

Specimens of steel used for tools, cutlery, &c. Table and small cutlery. Butchers' knives; razors; edge tools; files; scythes; hay-knife; straw-knife. Spring for railway trucks, waggons, &c.

163 BROOKSBANK, A., Matinda Works, Sheffield—Manufacturer.

Files and rasps of different sizes, adapted for the use of engineers, joiners, &c.; manufactured from the best cast-steel.

164 WORRALL, HALLAM, & Co., Sheffield—Manufacturers.

Hackles, circular gills, and other gills for flax-dressing. Samples of cast-steel wire in coils and lengths. Spiral springs for balances and machinery. Brass spurs for self-acting templates. Specimens of needles in different stages of manufactures. Samples of hackle and gill pins. Set of brush-makers' engine-combs. Cast-steel broaches for wool-combing.

165 COUSINS, J., & Sons, Garden Street, Sheffield—Manufacturers.

Paper scissors and bankers' scissors; tailors' scissors; horse-trimming scissors.

Ladies' cutting-out and fancy scissors.

Grape-scissors and flower-gatherers to hold.

Gentlemen's budding-scissors and flower-gatherers.

Gentlemen's nail-scissors; left-handed scissors.

Gardeners' budding-scissors to hold.

166 HUTTON, JOSEPH, Ridgeway, Sheffield—Manufacturer.

Two bars of iron and one of cast-steel. Two and a half bars of iron, and half bars of cast-steel, welded together under a tilt (water or steam power hammer), and to be used for the manufacture of scythes and edge-tools; also for the more effectual prevention of housebreaking, the steel, when tempered in water, presenting a powerful resistance, while its elasticity renders it applicable to the lining of curved window-shutters, doors, &c.

Berkshire hooks, for reaping, to be used in the manner of a Hainault scythe.

Riveted scythe, composed of strips of cast-steel between two layers of iron. Riveted Berkshire hooks, formed in same manner, both water hardened.

Pair of cart axles, with revolving spherical bushes, upon a principle which is applicable to railway carriages, heavy machinery purposes, &c. Spheres for revolving spherical axles and bushes; reduces friction, &c.

Sheep-shears, with cast-steel edges, which will not chafe each other.

Sickle, adze, joiner's bench axe, Sussex woodman's bill, firmer-chisels, socket-chisels, and double plane-irons; all with cast-steel edges.

167 FLATHER, DAVID, Solly Works, Sheffield—Manufacturer.

Joiners' tools, consisting of braces, bits, squares, bevels, gouges, spirit-levels, spokeshaves, turnscrows, augers, gimblets, saw-pad, saw-set, brad-awl, pad, and skates.

168 MACHON, JOHN, Sheffield—Manufacturer.

A variety of scissors and slide pruning shears.

169 MARSDEN, BROTHERS, & SILVERWOOD (late FENTON & MARSDEN), Bridge Street Works, Sheffield—Manufacturers.

The "Royal Albert" skate.

Selection of skates, assorted in various patterns.

Tools for joiners, carpenters, and cabinet-makers.

Braces, with registered brace-head, constructed so as to prevent its working off.

The registered mortice-gauge, having the tube or barrel moved at either end by means of a turncrew, which sets the head and the cutters firm in position.

Screw and shell augers, of various patterns and sizes.

A general selection of botanical and horticultural tools, suited for professional and amateur gardening.

170 JOWETT, J., Arundel Lane, Sheffield—Manufacturer.

Edge tools and sheep shears.

Horse, rag, and weavers' shears.

171 BROOKES, JOHN, Dorset Street, Spring Lane, Sheffield—Manufacturer.

Articles suitable for ladies' work-boxes and gentlemen's dressing-cases, made in steel, ivory, and pearl; button hooks, nail files, tweezers, corkscrews, stilettes, &c.

172 HALL, T. H., Leecroft, Sheffield—Manufacturer.

A variety of tops, saws, screws, &c.

173 WILLOUGHBY, T., *Sheffield*—Manufacturer.
Secret dial penknives.

174 TURNER, HARRIET & WILLIAM, *Bridge St., Sheffield*—Manufacturers.

Registered fire irons, viz.—
Octagon heads, and square arras bows and shanks.
Improved leaf bow diamond cut shanks, rich or-molu heads, and new vase-pun.
Twisted diamond cut shanks, bows, and heads.
Octagon heads and bows, with hexagon shanks and poker, of new form.
Or-molu heads, and plain shanks.
Octagon fluted shanks, and original heads, bows, and shanks, to supersede the old joint made inside of the bow.
Short leaf bows, with octagon heads, bows, and shanks, with new joint and modern heads.
Or-molu and steel head. Modern octagon shanks.
Plain twisted shanks, octagon steel heads.
Plain octagon heads, bows, and shanks. Plain bed-room.
Octagon heads and plain shanks. Steel standards.
Registered Cyma-recta, or bent fire-irons.

175 WILKINSON, THOMAS & GEORGE, 17 *New Church Street, Sheffield*—Manufacturers.

Duplicate specimen of scissors, manufactured for the Queen, with the ornamental scroll-work, royal arms, Victoria, &c., filed out of solid steel. Six dozen files were required to cut out the work.

Heraldic dressing-case scissors, with the arms of H.R.H. Prince Albert, of the Duke of Norfolk, and of the Duke of Devonshire.

Ladies' scissors, with scroll-work handles, and electro-gilt medallion of the Queen. Ladies' steel scroll-work scissors, forming the letter V, filed out of solid steel. Ladies' scissors, lily-of-the valley pattern, with steel blades, and electro-gold and silver handles. Ladies' scissors, vine pattern, with steel blades, and electro-gold handles.—Provisionally registered.

Nail-scissors, with medallion of H.R.H. Prince Albert. Dagger and paper scissors, Elizabethan style, with steel blades, and electro-gold and silver handles. Large cutting-out scissors, design—rose, shamrock, and thistle, filed from solid steel.

Scissors, 23 inches long, forged from ingot of steel, with etching on blades of the Exhibition Building and scroll-work.

Patterns of scissors, with handles, Gothic, German, and other styles, also flowers, snakes, birds, dolphins, filed steel scroll work, &c. Patterns of scissors, of different sizes. Ladies' fine work, cutting-out, lace, nail, button-hole, and dressing-case scissors. Miniature scissors, six pairs, weight $\frac{1}{2}$ grain, and in sizes from $\frac{1}{8}$ th to 2 inches long. Improved double-spring nail scissors. Hair-cutting, nail, and drapers' scissors, and fly trimmers.

Bankers', paper, and paper-hangers' scissors. Tendon-separators, and surgeons' scissors. Improved dressmakers', calenderers' or packers' and fustian scissors. Scissors and steel combs, for trimming horses. Good steel forged scissors. Tailors' scissors and shears, of different sizes and patterns.

Improved tailors' shears, with electro-gilt, silver, German silver, and brass handles. The combination of brass, &c., with steel in the manufacture of tailors' shears is the invention of the exhibitors; it allows the handles to be moulded exactly to fit the hand, gives great strength in cutting, and is made at less cost.

Regulating spring-screw, invented by the exhibitors; it resists the pressure caused by cutting strong substances, and prevents shears or scissors from working loose. Lever-spring scissors, intended to give uniform pressure upon the edges, and prevent friction. Scissors, showing various stages of manufacture. Pruning shears and scissors, vine-scissors, flower and grape gatherers, shears for cutting gold, silver, copper, tin, &c.

176 BLOOMER & PHILLIPS, *Albert Works, Sheffield*—Manufacturers.

Various brace-bits. Kingswood brace, with new ever thumb-bit. The simplicity of the spring prevents it from being injured in any part.

Ebony brace, with lever thumb-bit. Chisels and gouges. Bright brace screw-bits. Double CS plane iron. CS gentleman's drawing-knife. Squares. Best square, 30 inches. Two each shell and screw. Improved sliding bevil, 6 inches. Spirit levels. Ebony and kingswood spokeshaves. Ebony plated spokeshave. Plough bit.

177 WRIGHT, JOHN, *New George Street, Sheffield*—Manufacturer and Inventor.

Ladies' and gentlemen's skates, with improved swaged irons and toe leather.

Improved truss, with rack pad, to obtain any pressure required.

Two-handled horse-scraper, which may be used instead of a curry-comb.

Cast-steel shoe-lift. Specimens of horse trimmings, cast steel. Ladies' steel buxks, made by registered apparatus.

Crochet-spikes, made to be fitted on any shoe, and removed to suit the tread of the wearer.

Combs made of cast-steel, for graining oak, &c.

178 UNWIN, W., *Sheffield*—Manufacturer.

Knife with various blades, scissors, cork-screws, &c.

179 MORRISON & PARKER, *Rockinghamshire Street, Sheffield*—Manufacturers.

Carpenters' bracos, with and without complete set of bits.

Square, spirit level, bevel, spokeshaves (assorted kinds), gauges, saw-pads, gimblets, augers, and turnacrews.

180 MAPPINS, J., *Sheffield*—Manufacturer.

Engraved razor and knife handles.

181 HOWARTH, JAS., *Sheffield*—Manufacturer.

Tools for engravers and print-cutters, comprising gravers, burnishes, and scrapers.

Mariners' compass, needles, and gunsmiths' stocking tools. Turning and carving tools. Edge tools—light, comprising chisels and gouges. Edge tools—heavy, comprising adzes, axes, and garden tools.

Tool chests for botanists and tourists, containing rake, hoe, two-prong garden fork, three prong fork, garden-trowel, pruning-chisel, weed-hook, Dutch hoe, spud-hammer and hatchet, pruning-saw, chisel, pick and spike, with long and short handles.

182 BROWN, HENRY, & SONS, *Western Works, Sheffield*—Manufacturers.

Braces and bits. Improved plated brace, with lignum vitae head. Iron brace, with brass head. Small fancy brace, with ivory head.

Patent anti-friction brace, with ebony stock, ivory head, with bits complete. The improvements are, that the spindle works upon a hard steel centre, instead of a collar, which reduces the friction, and the head is secured to the neck by a nut screwed into the socket-piece, to prevent the head coming off, and produce the steady working of the brace.

Squares:—Plated and ebony, with spirit-level.

Bevil:—Improved slide; ebony.

Gauges:—Ebony, improved rack gauge, screw slide mortice; and cutting gauge.

Turnacrews:—Handled, bright, London, round blade, and Moon's pattern.

Spokeshaves:—Boxwood, beech, pearl, plated, ebony.

Pearl plated screw-irons.

L. M. N. O. 18 to 20, & 25 to 27; O. 8, & P. 3 to 29.

Saw-pads:—Ebony and boxwood, improved. Saw-set, with handle.

Spirit-levels:—Ebony, plated, and Scotch patterns.

Saw-frames:—Boxwood, inlaid with ebony.

Pricker-pads:—Ebony and ivory, with tools, gimlets, shell, and patent twist.

Augurs:—Common screw; bright shell; and Scotch screws. Skates:—Ebony, inlaid.

183 SKIDMORE & Co., *Enema Works, Sheffield*—Manufacturers.

A variety of surgical instruments.

184 DONCASTER, D., *Sheffield*—Manufacturer.
Patterns of steel.

No. 1.

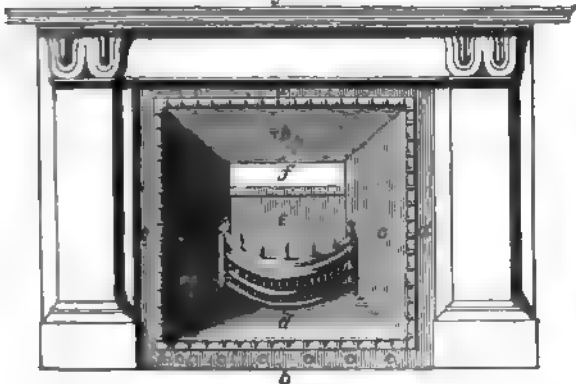


Nos. 1 and 2 are front views of this improved stove. The bottom, sides, and back are formed of a single fire-lump A. The front, facings, and other parts, are of iron. The curved bottom of the fire-lump projects in front to within half an inch of the grate bar a; and it rests upon a cross bearing, B, which is turned up behind as in fig. 2, in order that the latter may afford resistance to any thrust, from in front, against the fire-lump.

C C are two binding slips which fit into recesses of the sides c c of the fire-lump, as in the plan fig. 3; and come flush in front with the metal cheeks b b. D D are angle tie-pieces attached to the cheeks behind, and fitted to the sides of the fire-lump. E E are screws which are passed through the binding slips C C, and angle tie-pieces D D to bind the whole together. By undoing these screws, and removing the slips C C, the fire-lump can be entirely withdrawn, without disturbing the other parts of the stove.

No. 3.

Fig. 1



lump c, which, with the whole of the brick-work for setting may be introduced through the opening formed by the plates a b c d. A portion of this opening, f, is left vacant for the passage of the smoke.

185 PLIMSOLL, SAMUEL, *Sheffield*—Inventor.

Improved warming and ventilating apparatus, which can be forced by means of a wheel-fan, adapted, by means of a white enamel upon the exterior surface of the hot-air piping, casing, &c., to retain and conduct heat.

Improved runner, wheel, and cap for a pocket-umbrella; improved rib and stretcher for the same. A pocket-umbrella to attach to a walking-stick, or any other handle.

Improved surface file handles. Concave and convex surface-files; exterior and interior angle files. Moulding-file.

186 DEANE, DRAY, & DEANE, *London Bridge*—Inventors and Proprietors.

Fire-lump stoves (Leslie's patent, and the exhibitor's registration). These stoves are represented in the following engravings:—



No. 2.

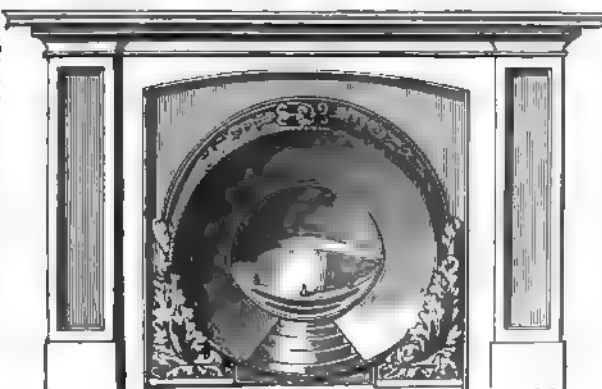


Fig. 3.



The utility of this stove consists in the grate or receptacle for the fire being entirely in front of the reflecting cheeks, and the additional reflector below the grate, increasing the reflecting surface.

Fig. 1, is a front view of the stove. Fig. 2, a vertical section on the line a b. Fig. 3, a transverse section on the line c d.

The back of the fire-grate, g, formed by the introduction of a fire

Yacht stove, with copper boiler and steaming apparatus.
Small yacht stove, without copper boiler.
Model improved cooking stove, with steam-closet, three steam kettles, bath, &c., all heated with one fire.

Electro-plated goods:—Sets complete, consisting of tea, coffee, water-pot, sugar, and cream,—teas extra; liquor-frame, cruet-frames, flower-stands, toast-racks, salts, waiters, and candlesticks.

Britannia-metal goods:—Dish-covers, manufactured by a new mechanical process, with strong metallic wires in the edges, equal to silver in appearance and durability; exhibited for cheapness; teapots, salt, mustard, pepper, soup-ladle; gravy, table, dessert, and tea spoons; also jugs, swing-kettle, dish-covers, cruet-frame, candlesticks, and coffee-pot.

Cast-steel, circular, and swaged saws:—London spring hand-saw, polished blade, with mahogany, zebra, London pattern, and country pattern handles.

London spring polished blade, with zebra-wood handle.
Improved pruning-bill, with polished blade, and kings-wood handle.

187 **WARBURTON, CHARLES, 60 Eyre Lane, Sheffield—**
Manufacturer.

Bright Scotch screw-auger with eye, 6-inch, weighing nearly 1 cwt., and in length 7 feet; considered the largest of the kind ever manufactured.

A variety of Scotch screws, twisted, and other augers, of different sizes, including a bright four-twist auger with eye 1½ inch, exhibited as a curiosity on account of its being a four-twist.

Improved shell-auger, ¾-inch: a recent invention.

187A **JOWITT & BATTLE, THOMAS & JOHN, Saville**
Works, Sheffield—Manufacturers.

Specimens of forged, tilted, rolled, and hand-drawn, cast, shear, and spring steel.

Complete set of engineers' and machine-makers' cast-steel files.

188 **HIGGINBOTHAM, G. & W., Sheffield—Manufacturers.**

An assortment of scissors, ornamented and mounted with gold and other metals, suitable for dressing cases, writing desks, &c.

Pair of fine scissors, made of refined steel, and hardened and tempered by a process not yet made public, which produces a durable edge, and a brilliant polish.

Razors, in ivory, tortoiseshell, and mother-of-pearl handles, and gold and silver mountings, with blades of similar temper, made of refined steel, and highly finished.

190 **TURTON, THOMAS, & SONS, Sheffield—**
Manufacturers.

Steel, commencing with Swedish bar iron.

Steel converted into blister steel of various temper.

Steel rolled for the manufacture of springs.

Refined cast-steel in the ingot.

Steel "tilted" into flats and squares for turning-tools, drilling and planing tools, millbills, dies, and every description of mechanics' tools, axes, &c.

Steel tilted oval and octagon, for cold chisels, &c.

Steel tilted under the hammer in swages, especially for taps and other articles used in machinery.

Steel tilted and rolled for the manufacture of files, edge-tools, chisels and gouges, plane-irons, circular and other saws, cutlery, and all articles manufactured from steel.

[Steel may be regarded as a carburet of iron; it is usually manufactured by the process of cementation. The cement, as it is called, consists of the charcoal of hard wood—sometimes soft is employed—mixed with a small quantity of ashes and some salt. The bottom of the trough of the cementing furnace being covered with this mixture, bars of steel are placed upon it; these are again covered with the carbonaceous compound, and so on until the trough is filled. The whole is closed, and

the fire urged until all acquires a temperature of about 100° Wedgwood; and this is steadily maintained for some days, the time varying, under different conditions, from four days to ten. In these furnaces, 12 tons of bar iron may at each charge be converted into steel. Blistered steel is so called from the air-bubbles which cover its surface, which blisters appear to result from the formation of carbonic oxide in the process of cementation.

The operation of *tilting* is performed by beating the steel under tilt-hammers until it is rendered of a very uniform structure. The tilt-hammers usually weigh about 200 cwt.—R. H.]

Files for engineers, machine-makers, millwrights, saw-mills, cabinet-makers, joiners, builders, agriculturists, &c.

Edge-tools, consisting of firmer chisels and gouges, turning-chisels and gouges, paring-chisels and gouges, millwrights' chisels and gouges, socket-chisels, mortice-chisels, single plum-irons, cut plum-irons, double plum-irons, drawing-knives, coopers' tools of every description, augers, English, American, Brazil, and ship axes; English, American, Brazil, and ship adzes; knives for curriers, tanners, and skiners, and various other articles comprised under the name of edge-tools.

Springs of various sorts for locomotive engines, railway passenger carriages, waggons, &c. Saws. Cutlery.

191 **IBBOTSON BROTHERS & Co., Sheffield—**
Manufacturers.

Collection of polished cast-steel circular saws.

Cast-steel mill saws; cross-cut saws; pit saws; frame saws; mill saw webs; stone saws; and Russian cross-cut and frame saws. Segment of a circular veneering saw.

Grafting, hand, panel, ripping, and steam saws, of different degrees of polish; with ebony, mahogany, rose, lignum-vitæ, maple, zebra, tulip, box, satin, red, and beech-wood handles, plain and variously ornamented.

Cast-steel cheap hand saws.

Back saws, with iron, burnished steel, blued and brass backs; with handles of hard wood.

Lock saws, with beech and lignum-vitæ handles, and with rosewood and mahogany pistol handles.

Pruning saws; billet webs; breaking-rut webs; turning, metal, and fret saws; and butchers' webs.

Cast-steel patent scythes. Cast-steel scythe rolled up, to show its elasticity.

Flat files—ruff, bastard, second-cut, smooth, dead-smooth, and double dead-smooth. Hand files, assorted cuts and sizes.

Three-square saw files, mill saw files, feather-edge, cross, riddle, rounding-off, entering, four-square, cotler, frame and gulleting, cabinet-makers' files and rasps.

Knife files, rubbers, flat-shoe rasps, half-round, double bevelled, and tongued horse rasps.

Ivory, tip, and stag table-knives and forks; dessert-knives and forks; guard, slicer, trowel, and venison carvers.

American hunting-knives. Table-knife sharpeners. Tilted best cast-steel.

192 **BUTCHER, WILLIAM & SAMUEL, Sheffield—**
Manufacturers.

Specimen razor, with handle formed of one piece of ivory, ornamented with engravings of the various manufactures of the exhibitors; the etchings on the blade represent the "Great Exhibition" building, accompanied with an allegorical illustration of "Commerce and her attributes."

Various descriptions of razors, edge tools and files, and saws.

Samples of cast-steel, round, four-square, and hexagon, in assorted sizes.

193 **BLAKE & PARKIN, Meadow Works, Sheffield—**
Manufacturers.

Improved cast-steel files and rasps, for engineers, machinists, &c. Improved cast-steel saws. Pair small

vices. Hammer-heads, and several pieces of patent tempered steel. Machine paper-cutting knife. Envelope cutters. Paper-makers' beating-plates and circular cutter.

Cloth manufacturers' spiral cutting edges on a cylinder; and loose cutters of different shapes. Tobacco cutting knife. Machine cutters for planing wood. Moulding and grooving irons, for wood work. Logwood cutting-knife and rasp. Corkcutters', tanners', and curriers' knives. Sheet cast-steel, polished for paintings. Mill-chisel with handle. Small patterns of springs, for railway uses.

194 GIBBINS & SONS, *Sheffield*—Manufacturers.

A pair of scissors, 19 inches long, representing the arms of England, France, and America, with the motto, "unity and peace," worked with small files and drills, round a portion of the bows in cipher letters. Exhibited for design and workmanship.

An assortment of scissors. A pair of scissors in the first process of manufacture. An assortment of nail-nippers. Champagne nippers or openers, various patterns.

An assortment of pruning-shears. Avernancaters. Garden hedge-cuttingshears. Fruit and grape-gatherers. Garden-fork, reel and line. Ladies' garden-fork.

Sets of scissors, of assorted sizes, and for various purposes.

195 WILSON, JOHN, & SON, *Sycamore Street, Sheffield*—Manufacturers.

Samples of shoemakers' knives. Butchers' and bread knives. Cooks' and curriers' knives. Farriers' and glaziers' knives. Palette knives and weavers' knives. Butchers' steels, &c. Corporate mark, four peppercorns and a diamond thus—



196 WARD & PAYNE, *Sheffield*—Manufacturers.

Edge-tools in every variety, comprising tools used by carpenters, joiners, shipwrights, millwrights, coach and cabinet makers, &c., such as cast steel firmer-chisels, gouges, plane-irons, socket-chisels, drawing-knives, block-makers' chisels and gouges, German parting-tools, coopers' tools, plasterers' moulding tools, shell and screw augers, trowels, machine plane-irons and moulding-irons, Brazil, Canada, London, coachmakers' and long falling axes, hatchets, choppers, hedging-bills, &c.

Curriers', tanners', skimmers', saddlers', mincing, and bookbinders' knives; turning-chisels and gouges; fancy turning-tools for iron, wood and brass; screw tools; bright and black carving chisels, gouges, &c.; yellow print-cutters; carving-chisels; gouges; parting-tools; spoon-bit chisels and gouges; engravers' and die-sinkers' tools of every kind and shape; sculptors' chisels; mezzotinto scrapers and shading-tools; plain and fluted scrapers; burnishers.

Braces, bits, turnscrows, spokeshaves, &c.

197 MARSHALL, SAMUEL, 25 *Eyre Street, Sheffield*—Designer and Manufacturer.

Specimens of illustrated Sheffield cutlery, consisting of razors, &c., carved, in mother-of-pearl handles. Gentlemen's pocket combs, &c.

198 SAYNOR, SAMUEL, & SONS, 13 *Edward Street, Sheffield*—Manufacturers.

Pruning and budding knives, for the use of gardeners, seedsmen, horticulturalists, &c. Exhibited for workmanship and material.

199 NAYLOR, VICKERS, & Co., *Sheffield*—Manufacturers.

Illustrations of cast steel by models of furnaces, rolling mill, and forge. An assortment of manufactured articles.

200 WHITE, THOMAS, jun., *Thorpe Neeley, Sheffield*—Inventor and Manufacturer

Improved hooks for fixing gas and water-pipe, made either bright or black; a new form being given to the

shoulder of the hook, which facilitates the driving, and the bend is lengthened to secure the pipe.

Improved horse-nails, in order to secure the shoe without injuring the hoof.

New wrought-iron nails for ship-builders, carpenters, joiners, and cabinet-makers. The improvement of this nail consists in its gradual thickness towards the head.

Improved rivets, in iron, brass, copper, or zinc.

203 EYRE, WARD, & Co., *Sheffield*—Manufacturers.

Different qualities of table-knives, commencing with those manufactured for export to the United States, the Canadas, South America, and Australia. Medium qualities, of various kinds.

Ivory, silver, and other descriptions of table cutlery of the best description.

Razors, pocket and penknives, dagger and Bowie knives, made from the best steel, and of every variety in quality.

Scissors, scythes, and sickles, of the best qualities, for different markets.

204 SORBY, ROBERT, & SONS, *Carver Street, Sheffield*—Manufacturers.

An assortment of sheep shears, comprising Australian, American, Trinity, Saxony, Trowel shank, Scotch, Wiltshire or Sarum, Dorsetshire, Norfolk, Kent, Devon, Leicestershire, and Lincolnshire. Kendal snappers, flyers, gloves, horse and T shears, &c. Weavers' pods, assorted patterns.

Cast steel circular saw, 5 feet in diameter, hardened and tempered. Various cast steel, and London spring saws. Polished circular saws. Specimens of files for sharpening saws, &c.

Axes, consisting of American, Australian, Kent, Scotch, Suffolk, Newcastle, Longfalling, ship, coachmakers', wheelers', Newcastle, blocking, Irish bench side, American house, Dutch, mortice, bullock, and coopers', &c.

Adzes, consisting of coopers', carpenters', ship, wheelers', electro-Scotch, American and Canada, spout, &c.

Butchers' cleavers. House choppers and sugar hatchet. Mincing and cheese knives.

Hatchets, consisting of improved claw, hammer, Shingling, Suffolk, Kent, and Irish.

Hedging bills, consisting of Yorkshire, Westmoreland, Nottingham, Lopping. Improved S'Bill switching, &c.

Hoes, garden, turnip, Dutch improved turnip, half moon, long neck swan, neck, &c. Patent lawn or daisy and garden rakes.

Improved garden tools, complete, made to fit one handle, viz., spade, rake, hoes, saw, spuds, fork, &c. Spuds and weed hooks, assorted.

Axes which have cut the bars of iron attached to each; the edges of which have not been sharpened since.

An assortment of various kinds of augurs. Wheelers' bruzz and ship scrapers. Socket lock mortice chisel. Cast and German-steel gouges and chisels.

Tooth plane irons, and cooper's jointer plane with irons. Joiners', coopers', and wheelers' spokeshaves. Best plough bills, braces and bits, &c. Plated squares, plated spirit levels; various bevels. Turnscrows, of assorted patterns and lengths. Sawpads. Best cast steel long pod and shell gimblets. Planes: smoothing, jack, trying, plough grooving, bead, fillister, and rabbit. Skates, assorted patterns.

Cast steel patent scythes, consisting of improved narrow Scotch, broad Scotch, narrow Canada grass, cradling corn. Broad Suffolk, south of England, north of England, Yorkshire, and grass-plat scythes. Best hampered scythes, consisting of broad Scotch, narrow American grass, cradling corn, south of England and Bramber scythes; patent and crown hay knives, cross and side handle.

Crown trussing knife. Patent and crown chaff knives. Machine straw knives. Cast steel patent reaping hooks, round and elbowed. Improved registered reaping hooks, assorted. Garden and grass shears, assorted patterns.

**204A LUCAS, EDWARD, & SON, *Dramfield, near Sheffield*—
Patentees and Manufacturers.**

Malleable steel-spoke railway and plate-railway wheels, which are cast in one piece, and are hard on the surface, the interior soft or malleable: they are said to be much lighter than the ordinary wheel, and to wear well.

Malleable steel carriage, coach, and cart naves and axles, which are formed out of one piece; they occupy less space than the ordinary wood naves, and are less affected by the weather.

A case of spindles and flyers in use for spinning flax, wool, cotton, and silk.

Specimens of cast malleable iron manufactured by a process of which the exhibitors are the original patentees.

205 TASKER, H., *Sheffield*—Manufacturer.

Cast steel saws, polished and etched with silver and gold.

**206 FISHER & BRAMALL, *Hoyle Street Works, Sheffield*—
Manufacturers.**

Files and rasps. Ironstone, pig, and bar-iron. Bar and ingot steel; spring steel; shear, cast, and sheet steel; cast-steel, hand drawn.

Engineers' chisels, hammers, and nut-spanner. Mill-bill. Masons' chisels. Circular saw, for cutting railway bars when in a heated state.

[Iron is converted into steel by a process called cementation, which consists in placing iron bars in troughs of fire-brick, and covering them with layers of powder of wood charcoal, salt, and ashes. Dr. Ure is of opinion that the latter material is valueless. Care is taken that the iron bars do not touch each other. The troughs, when filled, are covered up with loam, and subjected to the action of a furnace, the heat of which is urged until it arrives at the proper temperature, and until the trough and its contents become one red-hot mass of matter. In this state it is maintained for a longer or shorter period, viz., from four to ten days, according to the nature of the steel desired; if soft, the time is shorter. The heat produces the combination of the carbon with the iron and completes the conversion of a soft substance into one of the most brittle; it then undergoes the process of hardening, by being plunged into cold water.

Shear-steel is formed by uniting together several bars of blister-steel by means of a steel rod, and sprinkling over it, when heated, sand. After being again heated, it is drawn out into a bar by means of a tilt hammer, viz., a large hammer, which works by steam or water power. Repeated heatings not unfrequently transpose the converted steel into its original state of iron.

Cast-steel is produced by melting blister-steel in crucibles, which is done after the manner of the brass-founder, in a common-air furnace. The mouth of the crucible is covered; the fuel used is coke. The metal, when melted, is poured into a mould, and acquires the name of "ingot steel."

Sheet-steel is produced by being rolled between revolving cylinders of metal.

Hand-drawn, means rods which have been produced by manual labour, in opposition to those formed by the tilt hammer.—W. C. A.]

207 EARL, SMITH, & Co., *Sheffield*—Manufacturers.

Files and rasps, of all shapes, kinds, and sizes, from half an inch to twenty-four inches long.

Samples of steel of various kinds and shapes, from blister to the smallest watch-spring, exhibiting the fractures from the state of pig-iron to the most highly-polished steel, with the tempers classed.

**208 SLACK, SELLERS, & GRAYSON, *Sheffield*—
Manufacturers.**

Cast-steel polished circular, mill, pit, frame, and cross-cut saws.

Spring, ripping, hand, and panel saws, in ebony, beech, and zebra-wood handles.

Gentleman's cast-steel hand and other saws, having tubulated backs formed of iron, German silver, and brass, with handles composed of various woods.

Gardener's pruning, fret, bow, wood-cutters', and other saws for cutting wood and metals.

Straw or chaff-knife, polished; ledger blade, cylinder of spiral cutters for shearing woollen cloth, &c.

[After the weaving of woollen cloth, the small fibres of the wool of which it is made are raised by means of tease heads, or wire brushes; as a consequence, these fibres present irregularities in their several lengths, to reduce which to an equal or uniform surface, shears were formerly employed. These have been superseded by the application of a spiral cutting cylinder, which, being fitted with the necessary cutting edges, and revolving rapidly in contact with the cloth to be cut, and which is drawn on a ledge, speedily imparts to it the requisite uniformity of surface.—W. C. A.]

209 IBBOTSON, R., *Shoreham Works, 7 Shoreham Street, Sheffield*—Manufacturer.

Improved bill pruning saw. Black ebony plated handle saw. Rosewood handle saw, brass plate. Boxwood handle, blue back saw. Angica wood handle saw. London pattern hand and back saw.

210 MATKIN, T., *Hawley Croft, Sheffield*—Manufacturer.

Specimens of shears.

211 TAYLOR BROTHERS, JOS. & JOHN, *Burnt-tree Lane, Sheffield*—Manufacturers.

Specimens of saws:—American mill, cast-steel; Pit; Russian cross-cut; M-tooth, or continental cross-cut; circular; segment, or part-circular; suaged, or veneering circular; billet, or woodcutters' heb; and polished billet, Ohio or fleam tooth.

Ripping-saw, with French-polished boxwood handle, electro-plate screws. The novelty consists in the handle and the etchings which represent the different processes of saw manufacturing.

Sash or tenon-saw, with French-polished ebony handle, and electro-plate screws; with a representation of Windsor Castle and Park on the handle.

Hand-saw, with French-polished beech handle.

Polished hand-saw, with French-polished rosewood handle, raised steel screws, and etched.

Polished panel-saws, with French-polished box and zebra-wood handles, and etched.

Polished hand-saw, with Ohio or fleam tooth, French-polished ebony handle, raised steel screws, and etched.

Polished plate, brass back, sash or tenon-saw, with French-polished beech handle.

Polished panel saw, with French-polished ebony handle, electro-plate, and etched.

Panel-saw, with French-polished horse-flesh handle.

Ripping-saw, with French-polished zebra handle, and raised steel screws.

[The use of a ripping-saw is to separate the fibres of timber by eroding a portion of the fibre itself, to preserve an even way, and as an alternative to splitting. The crosscut-saw separates the fibre by a cut transversely, and effects more neatly and truly, and with less waste, what might be done with an axe; it cuts logs into shorter lengths, as the pit-saw splits logs into boards.

The tooth of a ripping-saw is more or less hooked, that of the pit-saw being shaped something like the upper mandible of a parrot; whilst the tooth of the crosscut-saw returns from its point or apex at an equal angle on

both sides of a line at right angles to the edge of the blade; consequently the ripping-saw bites in the down-stroke only, whilst the crosscut-saw can cut both ways; and it does so when worked at both ends, as in cutting logs of large sizes.

The saw blade is commonly thicker at the serrated edge than at the back; both that it may not be unnecessarily heavy, and that it may not bind in the cut or the kerf (the ripping-saw makes a cut, the crosscut-saw a kerf), though this latter object is more fully provided for by the setting of the saw; the setting being the bending outward of every tooth alternately on one side and on the other, to such an extent as the nature and condition of the wood, in respect of woolliness and wetness, or their opposites, may render a wider or a narrower way necessary or sufficient for the free passage of the blade along the cut or through the kerf.

Tenon-saws are crosscut-saws mainly, and as their name imports, for cutting in the shoulders to tenons. But these are shallow cuts, and requiring to be made with neatness, the blade is made rigid by a back which is commonly of brass. Narrow-bladed saws, for cutting in curved lines, are made thicker at the edge, and thinner at the back, and are not set.—W. H.]

212 **BIGGIN, SAMUEL, & SONS, Sheffield—Manufacturers.**

1. Ripping-saw, polished blade and handle, with silver shield, ornamented.
2. Hand-saw, with ebony handle, ornamented.
3. Hand-saw, zebra handle, and ornamented with a representation of the Exhibition building.
4. Ripping-saw, polished ebony handle, with raised silver screws.
5. Back-saw, polished blade and handle, with silver shield and fluted back.
6. A similar one, with zebra handle.
7. Another, with silver back, engraved and etched on blade.
8. Another, polished blade and satin-wood handle, silver back, and etched blade.
9. Back-saw, polished blade and handle, silver back, and handle inlaid with silver, shield engraved.
10. Another, with a bright back.
11. A similar one, blued.
12. Hand-saw, polished blade and rosewood handle, ornamented, with silver screws and etched blade.
13. Hand-saw, polished blade, and satin-wood handle, decorated with silver shield and etched.

213 **WHITTLES & FROGGART, 100 West Street, Sheffield—Manufacturers.**
Surgical instruments and penknives.

214 **STANFORTH, THOMAS, Hucknethorp, near Sheffield—Manufacturer.**

Sickles and hooks used in England. Hooks used in Wales. Sickles and hooks used in Ireland and Scotland. Sickles used in Poland and Russia. Sickles and hooks used in North America, United States, South America, and West Indies.

Scythes used in England, Ireland, Scotland, and North America. Bramble scythe used in the United States.

215 **HUTTON & NEWTON, High-lane, near Sheffield—Manufacturers.**

Patent and crown hay and straw knives.
Crown and patent scythes, suitable for the colonies of New South Wales, Australia, &c.
Crown and patent narrow Canada grass scythe.
Iron socketed grass hook, suitable for the East Indies.
Sickle, suitable for the colony of the Cape of Good Hope, &c.

Best bright Russian sickle, with polished handle, hoop, and ring. Polish and Canadian sickles.

Reaping-hook and sickle, suitable for Australia, New South Wales, &c.

Bagging or fagging hook.

Sickle, suitable for the United States of America.

Spanish and rice sickles.

216 **SHAW & SON, Sheffield—Manufacturers.**
An assortment of magnets.

217 **CUTLER, J., Sheffield—Manufacturer.**
A variety of edge tools.

218 **MARPLES, WILLIAM, Sheffield—Manufacturer.**

Kingswood plated brace, with straw coloured bits.
Beechwood unplated brace, without bits.

Centre bits. Brace with improved pad, by which the bits are introduced with much greater facility into the receptacle provided for holding them.

219 **CARFITT, THOMAS, & SON, Sheffield—Manufacturers.**

A collection of scythes, suitable for mowing or cutting, and used for the various purposes, and in the various counties and countries, enumerated as follows:—

Garden and grass-plot borders. Canada. Rice. Forged Cheshire. Cheshire, showing the under side. American corn, showing the under side. Broad-pointed Cheshire. Yorkshire, West Riding. Yorkshire, East Riding. Westmoreland, &c.

Knives for chaff, rag, and turnip machines. Chaff-box. Hay-trussing, hay-knife, and shear-steel round.

Elbowed, Irish, and bagging hook. Cast-steel round.

Cast-steel Kendal hook. Round, ribbed, crane, elastic, Cheshire and Kendal sickles.

The patent scythe, consisting of a cast-steel blade, with an iron rib rivetted upon the upper side, and elongated at the heel of the scythe into a tang. One of the peculiarities of this scythe consists in the blade and flange-rib, the back edge of which turns up, and meets the flange of the rib, to give it strength and lightness. The forged scythe consists of steel, which forms the edge, welded between two strings of iron, as a back.

220 **SKELTONS, SAMUEL & RALPH, Sheffield and Attercliffe—Manufacturers.**

Shovels and spades for various uses. Draining-tools.

221 **TASKER, JOHN, Sheffield—Inventor and Manufacturer.**

Pair of cricket shoes with gutta percha bottoms; made principally by machinery, applicable to the manufacture of various kinds of boots or shoes; superior for durability and appearance; made in one-third of the time, and much cheaper than the ordinary boots or shoes.

222 **BURROWS, SAMUEL, 94 Spring Street, Sheffield—Manufacturer.**

Specimens of table cutlery in black tip, self-tip, white bone, German silver, ivory, plated on steel, and ivory and pearl; with patent steel blades, and ornamental shanks.

223 **COOPER, G., Wicker Lane, Sheffield—Manufacturer.**

Specimen of registered Venetian chimney-top. Designed to create an upward draught, and to prevent downward draught. The lower courses are intended to give a direction to the wind impinging against them, which produces an upward current, and the top courses intercept and break the force of all wind from above, before it can in any way affect the flue.

As there are no parts of this chimney-top where soot can lodge, it will always be kept clean by the wind blowing through it.

224 HINCHCLIFFE, JOHN, 8 Hermitage Street, Sheffield—Manufacturer.

Flambeaux dagger hunting clasp-knife, 10½ in. haft, carved in pearl representing the cutlery's arms, with carved scrolls and flowers in bas-relief, cased in gold edge, with gold guard.

Gentlemen's Wharnccliffe knives, in pearl, shell, ivory, and stag handles. Ladies' knives, in pearl, ivory, &c. American hunting lock knives, in fancy handles, &c.

225 LEON, ABRAHAM, Sheffield—Manufacturer.

American hunters' knives, various sizes from 20 inches downwards, in Morocco and electro-plate sheaths.

Dagger knives, electro-plate and Morocco sheaths, with black and pearl-dotted handles.

Also, pierced electro plate, with silk velvet sheath.

226 SANDERSON, THOMAS JOSEPH, Sheffield—Manufacturer.

Anvils for the use of engineers, blacksmiths, and farriers. Anvil for exportation. Bright and black vices, for blacksmiths. Bright saw vice.

226A HAGUE, S., Devonshire Lane, Sheffield—Manufacturer.

Fancy penknives, varying in the number of blades, with corkscrews, silver pencils, &c.; and handles of tortoiseshell, mother-of-pearl, ivory, and horn.

228 HUNTER, E., Broomhall Street, Sheffield—Manufacturer.

Scissors and shears of all descriptions, with modern improvements.

Specimens of these articles, in the various stages of manufacture.

229 NELSON, JOHN, Sheffield—Inventor.

Set of parturition forceps, for difficult parturition in domesticated animals.

Pair of forceps for giving balls to horses.

230 JONES, J., 33 West Field Terrace, Sheffield—Inventor and Patentee.

Glass for sash-bars, frames, columns, cornices, windows, looking glass and picture frames. The glass is flint and coloured, and is plain, moulded or cut.

231 LINLEY, G. A. F., 43 Regent Street, Sheffield, Yorkshire—Designer and Manufacturer.

Horse-shears and sheep-shears.

Wool-sorters or thatchers' shears.

Improved gentlemen's grass shears.

Glovers', belting or dragging, and rag shears.

232 BELL, JOHN & JONATHAN, Sheffield—Manufacturers.

Silver fruit knives.

233 PEACE, JOSEPH, Sheffield—Manufacturer.

Hand-saw, ornamented japanned handle.

Ripping-saw, rosewood handle, with registered plates.

Hand-saws, zebra and ornamented japanned handles.

Back-saws, zebra, rose, and beech-wood handles, with and without brass backs.

Panel-saw, hand-saw, and ripping-saw.

Hand-saw, English measure on the back.

Back-saws, various sizes, and some with brass backs.

The above are all ornamented on the plates in a new style.

Russian crosscut-saw, plain and blued, with the mark gilt. Russia frame-saw. Mill-saw web. Brass-back saw, zebra handle and steel screws. Iron-back saw, beech handle, &c. Saw cook knives. Turkish dagger. Pannel-saw, mahogany handle, steel screws.

Hand-saw, zebra handle, registered plates, and English measure on the back. Chopping-knife. Turkish hand-saw.

Large circular saw, with spindle and spanners complete, each tooth ornamented with a bird's head, the

plate ornamented with the English, American, Russian, and Sheffield arms. Spring steel hand-saw, with registered plates in brass. Billet-web. Spring steel hand-saw, with registered plates in polished steel.

Glass frame, containing registration deed for the improved plan of plating saw-handles.

Glass case, containing old style of marking saws and the new style introduced by the exhibitor.

Glass case, containing saw-handles, with plates in the old style and in the new registered style.

233A PEACE, HENRY, Sheffield—Manufacturer.

Samples of files and rasps of every description.

234 COCKER & SONS, Hathersage, Derbyshire—Manufacturers.

Needles, in every stage of their manufacture, from the wire of cast steel to the finished article.

The exhibitors, being the drawers of card and other wire, a process which originated with their ancestors, a century ago, Mr. Huntsman, of Attercliffe, who first refined carbonated iron, and which has been a source of great wealth, not only in the manufacture of cast steel, but in the great variety of articles of cutlery for which Sheffield is so celebrated, suggested to them that it would be mutually advantageous if they could succeed in drawing cast steel made from his carbonated iron. The suggestion was adopted, the attempt was made, and the cast steel and the wire made from it are now articles of very extensive exportation.

Specimens numbered in the order of manufacture:—

Wire: 1, cut double length of a needle; 2, straightened; 3, pointed at each end; 4, grooved, for two needles; 5, eyed, for two needles.

Needles: 6, threaded; 7, filed on the sides; 8, filed on the heads; 9, broken in two; 10, drilled in the eye; 11, hardened; 12, tempered; 13, straightened; 14, scoured, first time; 15, scoured, second time; 16, scoured, third time; 17, scoured, fourth time; 18, glazed; 19, headed, and picked from waste; 20, blued in the eye and groove; 21, drilled in the eye; 22, first extra polish; 23, second extra polish; 24, third extra polish; 25, blued in the eye and groove; 26, gold-eyed; 27, papered, twenty-five in a paper; 28, papered and tugged; 29, papered in envelopes; 30, labelled, in envelopes, and on purple paper; 31, in cases.

Wire of various kinds:—32, pinion and click wire, for clocks and watches; 33, music wire, for pianofortes; 34, watch and chronometer spring wire; 35, cast steel, hammered flat, half flat, and square.

Nos. 36–41. Hackles, from large hatchel to 180's fine. Gills, for dividing the fibres of flax in machinery. Hackle-pins. Gill-pins. Wool-combers' broaches. Spiral springs.

42. Particles of cast steel, taken from pipes used in conveying away the dust occasioned in grinding needles on dry stones, and which would, if allowed to float in the air, be inhaled by the grinders, thereby causing a complaint until lately very common, and hitherto incurable.

[About twelve or fifteen years ago, several methods were tried to remedy this, but they did not effectually succeed until a powerful fan, as represented in the plan hanging on the boards at the end of the counter, was put up, on which is shown a grinder at work, and the blaze of fire arising from the stone in the act of pointing, with the fan underneath, drawing the dust and particles of steel down the pipe, and leaving the atmosphere of the room perfectly clear and free from all injurious effects; so that dry grinders have now the chance of living as long as other men; without this apparatus they cannot now be induced to work; it is therefore universally adopted.]

235 BROWN, JOHN, Atlas Steel Works, Sheffield—Manufacturer.

Conical railway spring buffer, with wrought-iron cylinder plungers of varied actions and resisting powers, suit-

able for waggons, goods vans, locomotive engines and tenders, and passenger carriages.

[The utility of the railway buffer consists in its tendency to counteract the effects of the shock which arises from the stoppage of a railway train on the line.

The momentum of the stopping body is dissipated by the application of an elastic medium, which opposes some resistance to the body which gives the blow. In the present instance, a steel spring is used, which is enclosed in a cylinder having a piston with a corresponding end stuffed and covered with leather works in it. The blow drives back this plunger against the spring, which to a certain extent resists, and thereby dissipates the effects of the collision.—W. C. A.]

Patent conical railway drawing spring, for railway-carriages and waggons, of 3-inch action, and 75 cwt. resisting power, with one pair of miniature brass buffers, which may be pressed to show the action. The mechanical action of these springs consists in one coil falling within the other until they assume a planular form. They are capable of adaptation to any description of railway plant.

Conical buffer springs, without fittings.

Laminated railway-carriage and waggon buffer and drawing spring, weighing 200 lbs.

Passenger railway-carriage spring, with tension bar and clips complete, weighing 127 lbs.

Railway goods van spring, with spear-point ends, and extra steel cushion bearings, weighing 112 lbs.

Mineral waggon bearing springs, weighing 70 lbs.

Registered mineral and goods waggon bearing spring and clip. The improvement in this spring consists in its bearing from the centre, and thus bringing into action the whole length of the plates; the spring is also strengthened by having studs in the centre, instead of holes punched through to hold the plates together; weighing 62 lbs; resisting power, 4½ tons.

Improved railway-waggon bearing spring, with tension rods; intended to be used where great action is not required, and to provide for the inequalities in the height of waggons when loaded; weighing only 44 lbs., with 4 tons resisting power.

Specimens of engineering and machine files.

236 HUXLEY, HERIOT, & Co., *Castle Street, Long Acre*
—Inventors and Manufacturers.

Cook's patent self-regulating stoves for attaching to brick flues, with new mode of controlling and preventing excess of heat. Self-acting regulator, as used on Cook's patent stoves.

Economic gas stove for heating water or warming rooms. Gas stove with enclosed cockle, from which the products of combustion are carried away.

Hydraulic stove, heated by gas, the cylinder containing water suited for small conservatories, &c., or to place horizontally enclosed in ornamental case.

Ornamental candelabrum for gas, lacquered or-molu. Elizabethan chandelier for gas, designed by Mair. Fancy chandeliers for gas, and ornamental bracket for gas, new designs.

237 JEAKES, WILLIAM, 51 *Great Russell Street*—
Inventor, Designer, and Manufacturer.

Improved ventilating stove grate, the heating surfaces of which are composed entirely of pure fire loam, the object being to prevent the decomposition or burning of the air. The air which feeds the fire is supplied from an external source, and thus all draughts are prevented.

Improved grate for the chimney-piece, exhibited by Mr. Thomas, of Church Street, Paddington.

238 GLENTON & CHAPMAN, 147 *New Bond Street*—
Manufacturers.

White marble statuary chimney-piece, with carved foot and trusses.

Bright polished steel register-stove, with rich or-molu ornaments, in style of Louis Quatorze.

Bright polished steel fender and fire-irons *en suite*.

Improved portable vapour-bath, with cloak complete, in a japanned box.

239 PRIDEAUX, THOMAS SYMES, 2 *Garden Road, St. John's Wood*—Inventor.

Dwelling-house grate, consisting of a simple plan of feeding at the bottom, by which smoke is prevented, and economy attained.

[Dr. Franklin designed a stove to turn on a centre, so that when requiring fuel it could be reversed, fed, and placed again in its proper position. The smoke from the fresh fuel, having to pass through the burning fuel above, was converted into flame.—S. C.]

Model of a patent steam-engine boiler, capable of supplying a great quantity of steam in proportion to its size and expenditure of fuel.

Model of a patent machine for cutting agricultural drains in clay soils. Also adapted to land requiring minute subdivision.

240 BUTTERLEY, RICHARD, *Greenhill, Sheffield*—
Manufacturer.

1. Patent Irish hook, No. 3, cast-steel blade, elastic back; rivetted.

2. G. B. sickle, cast-steel, No. 4; coarse cut.

3. Improved elastic sickle. Its lightness, strength, and elasticity have given it an advantage over every other kind of sickle, which has been fully proved. Exhibited for special inspection.

4. Elastic cast-steel Andrew hook, large size, combining lightness and strength.

5. Elastic cast-steel Kent sickle, No. 4; very light, with sufficient strength.

6. Scotch sickle-hook, shear-steel, No. 0; cut to the point.

7. Small grass-hook, universal, No. 0; shear-steel.

8. Bright Russia sickle, elastic cast-steel, No. 2.

9. Bean, or brushing hook, elastic cast-steel, No. 2.

10. Kendal hook, shear-steel, No. 4.

11. John Bull sickle, elastic cast-steel. Exhibited for its superior qualities, which have been tested by four years' hard service.

12. The Tomlin shaped sickle, shear-steel, No. 4.

13. Poland sickle, cast-steel, No. 1.

14. Elastic cast-steel Philadelphia sickle, No. 5.

15. Elastic cast-steel Yorrack sickle, No. 5.

16. Shear-steel Hollander sickle, No. 1.

17. Elastic cast-steel Windsor hook, No. 5; cut at the point.

18. Elastic cast-steel elbowed Scotch hook, No. 3.

19. Elastic cast-steel bagging-hook, No. 6.

20. Elastic cast-steel 28-inch yowing-hook.

241 EDWARDS, DAVID OWEN, 5 *Sydney Place, Brompton*—Inventor.

Patent "atmopyre" hoods, or artificial embers; they are made of porcelain; the gas is introduced into the interior, and escapes through small perforations in the sides, 1-50th of an inch in diameter, and when ignited, burns with a pale blue flame, and emitting little or no light, in a few minutes the mass becomes red-hot. They thus constitute, when used in the aggregate, a solid fire.

The inner case, in which this artificial fire is contained. An example of a complete atmopyre, adapted to the heating of apartments.

A kitchen range of porcelain, adapted to bring into use the atmopyre hoods.

[Chemists have long employed gas burnt in the manner described for the purposes of the laboratory on a small scale. By covering a cylinder of copper with wire gauze, and discharging coal gas into the lower part so as to cause it to unite with a certain volume of atmospheric air, a gaseous mixture is produced, which burns over the wire gauze with a blue lambent flame. The perforated hoods

of porcelain, in the invention described, are the representatives of the chemists' wire gauze, with the advantage, for heating purposes, that they retain a portion of the heat developed by the combustion of the mixture of coal gas and air, which is remarkably intense.—R. E.]

242 WHITNEY & CHAPMAN, 18 Fenchurch Buildings, 70 St. John Street, and 11 Ray Street, Clerkenwell—Manufacturers.

Registered mill for grinding coffee, with anti-friction wheel to carry the fly-wheel. Coffee-mill, of different design.

Universal corn-crusher, for bruising oats, barley, malt, beans, peas, linseed, &c.; the same, with an extra mill attached, to grind barley meal.

Flour-mill, with French bean stores and dressing machine for grinding and dressing flour at one operation; the same, with steel mill and dressing machine.

Smoke-jack for roasting meat, &c.

243 POPE, WILLIAM, & SON, 80 & 81 Edgeware Rd., and Grove Foundry, Lisson Grove—Inventors and Manufacturers.

Patent double-action rarsifying stoves, ornamented. Section, showing the internal arrangements.

243A SHEERWIN, JOSEPH, 21 Norton Folgate—Manufacturer.

Economic range and supply cistern, hot closet, steam kettle, tea-kettle, bath, and bath stove.

244 CROOK, WILLIAM, 5 Carnaby Street—Inventor and Manufacturer.

Hot plate, oven and boiler, kitchen range, and improved outside movement smoke-jack, with dangle movement and cradle spit.

Tailors' stove; a larger number of irons can be heated, with a smaller quantity of fuel, and in less time than by the ordinary stove.

245 CORNELL, T., Messrs. FEETHAM'S, Clifford Street, Bond Street—Inventor and Manufacturer.

Model of a cooking apparatus, to be used either with coal or gas. Suitable for club-houses and other large establishments.

247 BURTON, WILLIAM SAMUEL, 39 Oxford St.—Inventor and Manufacturer.

New nautilus register stove. Fender, and chimney piece for the same. See the cut below.

Registered ornamental fenders. Sundry metal wares.



Burton's Nautilus Register-stove.

248 WARRINER, GEORGE, 16 Arundel Street—Inventor.

Gas stove for cooking, made of fire-clay enamelled, which retains and radiates the heat and causes a saving of gas.

Gas bath for heating water sufficient for a large bath in ten minutes, at the cost of one penny.

249 O'NEIL, JOHN COLLINGWOOD, 63 Bradford Street, Birmingham—Manufacturer.

Pair of 42-inch smith's bellows. Pair of 36-inch smith's bellows, with galvanized iron work.

Improved portable forge, complete, with vice.

House bellows, fancy satin-wood. Mahogany and japanned bellows, different patterns.

250 **CARTWRIGHT & HIBONS**, 138 & 139 *Great Charles Street, Birmingham*—Designers and Manufacturers.

Electro-plate on German silver:—Waiter. Revolving liqueur-frame. Antique crust-frame, supported by dolphins. Crust-frame. Salad or fruit-stands. Butter-coolers. Sugar-baskets. Egg-frames. Inkstand. Cake and fruit basket. Card-baskets. Small flower-stands, &c.

251 **TAYLOR, SAMUEL**, 117 *New Canal Street, Birmingham*—Manufacturer.

Specimens of bellows, as follows:—Alhambra, arabesque, and mahogany, in red morocco; Chinese, mahogany, American birch, fancy walnut, in green morocco; pear-tree, in puce morocco; and a fine article, in neat's leather; with a common article, adapted for the export trade.

252 **STOKES, JOHN C.**, *Monmouth Street, Birmingham*—Inventor.

Registered water-closet, fitted in mahogany case to exhibit the working of the apparatus when fixed. Cabinet water-closet, made of china and earthenware: manufacturers, Messrs. Ridgway & Co., Caudon Place, Staffordshire Potteries. The annexed cut gives a representation of this object.



Ridgway & Co.'s Cabinet Water-closet.

Registered brass tap, capable of bearing great pressure without leaking.

Improved shoe and round valves, with one flange instead of two, the weight and ball being tapped and threaded so as to admit of new leathering without removing the valve.

253 **ALLDAY, WM.**, 32½ *Constitution Hill, Birmingham*—Manufacturer.

Japaned bellows, inlaid with pearl, with view of the cathedral of Notre Dame, Antwerp. Japaned dust bellows, with pearl flowers, Gothic shape. Fancy bellows. Chamber bellows, rosewood, carved, and French-polished. Parlour bellows, walnut, turned top. Mahogany bellows, with brass pipe and nails, French pattern. Common kitchen bellows. Fumigating, or spring bellows, used for destroying insects on plants, in gardens, hothouses, &c. Small smiths' bellows, with galvanized nails, made in the original London style. Lamp bellows, used for soldering.

Small fancy bellows, tartan pattern; one pair covered with seal. Small dust bellows. Butchers' bellows, used in puffing up meat. Pair of bellows, maple wood, scolloped edges. Pair of 24-inch round bellows, with frame complete.

Improved portable forge, with vice and hearth attached.

254 **GRIFFITHS, THOMAS F.**, 68 *Bradford Street, Birmingham*—Manufacturer.

Articles in tinned iron:—Venison dish and cover and soup tureen and cover; stamped, no seam or brazing. Hot-water dish and cover, and spirit-lamp dish and cover. Hot-water vegetable dishes and covers; oblong dish-cover; oval-dome top dish-covers, and soup tureen and cover; no seam or brazing. Oblong vegetable dish and cover, gadroon edge. Stamped hot-water plate, the same with earthen plate. Oblong tea-urn. Round tea-urn. Round coffee-urn with filter. Stamped tea kettle. Plate-covers, and extra large Albert dish-cover, no seam or brazing.

Tinned iron tea and coffee services. Copper-tinned cake and jelly moulds. Copper moulds made by hand. Iron moulds, stamped. Rare and curious iron stampings. Tinned iron and copper saucepans, no seam or brazing. Tinned iron candlesticks. Tinned iron, copper, and brass funnels. Tinned iron flour-dredger, no seam or brazing. Tinned iron tobacco box.

Carey's Hecla coffee-pots on stand, with spirit lamp, each bright and bronzed. Carey's Hecla, for the fire. Tinned iron egg-cup. Rare and curious iron culinary goods, coated with glass. Ornamented toilet services. Ornamented toilet vase, in iron.

[This coating with glass, a kind of enamel, is a French invention, and the powder of which it is composed is imported; the article to be coated is gummed or sized over, the glass-powder dusted upon it, and by exposure to heat, or a properly constructed oven or muffle, the whole is fused and coated.]

The specimens of iron stampings are peculiar, as exhibiting the ductility of the iron, and certain improvements in the mode of raising, which is accomplished by pressure and repeated annealings.—W. C. A.]

255 **COPE & COLLINSON**, *Birmingham*, and 53 *Berwick Street, Soho*—Manufacturers.

Specimens of castors for furniture, as formerly made; and of Cope's first patent improved castors, having three rollers working round an upright spindle, with a conical bearing. Specimen of patent round socket, and other castors having a cup-and-ball action, separated to show the parts.

Complete series of socket and plate castors. Specimens of various fancy patent castors.

A large plate-castor, used for large dusting platforms.

Windsor pivot-castor, having a pin or pivot action working downwards in a socket, open to show the principle.

Series of patent movements for dressing glasses, with model, to show the application: the centres are iron balls working in jointed frames, and tightened by a screw.

Patent globular blind mountings, with model the action is a ball compressed in a moveable frame acted upon by a set-screw, with a clip-guide to keep the cord tight while winding round the barrel or roller.

Model, showing the application of a patent bedstead-brace by a centre screw combined with a curved wrought-iron plate, drawing the posts and rails firmly together; the action is inside the framing.

Registered music-stool screw, of which the improvement consists in the screw being enclosed in a case, the upper part of which is lined with an elastic material, while in the lower part the nut is firmly fixed.

Registered Venetian blind, with model, showing its application; it is wound up like a roller blind, with a rack and lever; when the lever is released it brings down a break on the roller, which regulates the action, and prevents it from falling suddenly.

Folding ornamental Essex fire-screens, with brackets to fix to the wall.

Series of different sizes of Horne's patent butt hinges, with illustrations to show the different stages of manufacture, from the rough-drawn metal to the finish. This

hinge being made from drawn metal, by machinery, is true, and of uniform strength and thickness.

Specimens of locks, hinges, springs, and iron work used in the manufacture of pianofortes.

256 ROCKE, WILLIAM, Dudley—Inventor.

Rails, ornaments, hinges of large size, cranks for engines, nails, burs or mits for screws, all cast from wrought iron scrap from the cupola of a foundry, showing that anything cast from metals may be cast from wrought iron, and its quality for toughness retained.

[The process of manufacture here alluded to is a patent invention of some importance. Hitherto malleable cast-iron has been produced by surrounding the articles with powdered iron ore, and exposing them for days to the heat of an annealing furnace. By the process here illustrated, old rails may be remanufactured.—W. C. A.]

257 HARCOURT, WILLIAM & JOSEPH, 209 Bristol Street, Birmingham—Manufacturers.

Specimens of brass foundry used by bell-hangers, consisting of bell-levers, pulls, horizontal and quadrant, some newly designed.

Specimens of brass and iron bell carriages, and of the cast iron registered bell carriage (the first made in iron). The improvement in the latter consisted in substituting wrought iron stands and plates with brass arms to increase its durability and protect it from rust.

Purchase cranks with iron backs, &c.

Specimens of door-handles, tea-bells, cornice-poles and ornaments, hat and coat hooks and castors, of new and ornamental construction.

Vases in various styles: bronze, electro-silvered, dead gold and relieved; also fitted with improved spring igniter for lighting the vesta matches.

Plain and ornamental brass boxes for holding vesta matches and wax tapers in various styles of finish.

Plain three-quarter covered cornice-pole, mounted complete, with centre ornamented *en suite* with the bands and ends, and with Arrowsmith's patent damask curtains resembling cut velvet-pile.

258 SOLLY, JAMES, Leabrook Iron and Steel Works, Tipton, near Birmingham—Manufacturer.

Specimens of English iron for conversion into steel; and of various kinds of steel; and articles of hardware and cutlery, made from the steel, namely:—

Elliptic carriage spring; hand-saws and circular saw; files of various kinds.

Bush chisels and gouges. Carving, dinner, and dessert knives.

Scissors. Pocket and penknives of various kinds. Razors.

These articles are specimens of steel and steel goods, made of English iron.

261 MALINS, D., & SON, Birmingham—Manufacturers.

Brass window-cornices and ornaments. Poles, with ends, rings, and brackets. Curtain bands and pins. Finger-plates for doors, brass and japanned.

[The rich dead gold-like colour given to brass work, and which has been introduced within the last thirty years, was discovered as the result of an accident. The work is first "scaled" (or roughly cleansed) by immersion in a weak solution of acid, it is then what is technically called "fezzed," viz., the work passed through a stronger solution; "deadening," follows, and this is effected by means also of acid, but of such a degree of strength that the action on the metal though recognisable is not of a violent kind; attention is necessary to this point, otherwise the work when finished will present a mottled

appearance; it is now dried out in saw-dust, and is then passed through acid of ordinary strength and dipped into water, of which there should always be an abundance at hand, until the acid be removed. The bright parts on the metal are produced by burnishing; gall is used in connection with the steel burnishers to prevent their scratching, and the article to be burnished is from time to time plunged into argol and water. When finished from the "burnisher," it is dried out in boxwood saw-dust, and then lacquered.—W. C. A.]

262 GRAY, A., & SON, 9 Wenman Street, Birmingham—Manufacturers.

Highly polished steel fire irons, with engraved burnished steel pans, and diamond, octagon, and hexagon cut; twisted, fluted, and scolloped shanks; with cut steel, or-molu, bronzed, silvered, and gilt, China, glass, pearl, and ivory heads.

Standards for fire irons; with octagon, hexagon, and twisted pillars, and horns varied in steel and or-molu. "Pokerettes;" with octagon, hexagon, and twisted shanks, and cut steel grips.

Coal vase tongs; with octagon, hexagon, and twisted shanks.

[Fire irons are produced by forging out of square bars of iron; the swells and other ornamental parts are formed by means of "swages," a sort of mould, one portion of which is placed on the anvil, while the other is held by a "willow twist" in the hand, and struck with a hammer until the form desired is arrived at; certain parts are then filed; the round portions are turned in a lathe. The articles are case-hardened by laying them in an iron box, and covering them with animal charcoal, formed of burnt leather, hoofs, &c.; the whole is subjected to the operation of a fire or stove until heated to a uniform red heat; the box and its contents are thereafter taken out and plunged into water. Polishing succeeds, which is done by holding the article against a wheel, to the circumference of which emery is attached by means of glue; another wheel or "bob," with finer emery, gives a higher degree of finish, and the final and brilliant polish is given by hand-friction with powdered iron-stone. The more highly wrought qualities, in which squares, angles, or cuttings are introduced, are, after filing, finished on a soft-metal wheel; the twisted varieties are produced by the forger, who, when the metal is heated, twists it into a screw or spiral; the pans of the shovels, &c., are formed by the stamp, and perforated by the press; the ornaments and studs are produced also by the stamp; they are afterwards ground and polished on a soft-metal wheel; and handles of China, glass, bronze, pearl, &c., are occasionally introduced.—W. C. A.]

263 HANDS, JOHN, Prospect Row, Birmingham—Manufacturer.

Specimens of ornamental stamped brass-foundry; cornice pole ends. Curtain bands; registered designs. Finger plates for doors. Pins for curtain supports. Ornaments for cornices and other purposes. Ornaments for watch hooks. Holders for bell ropes and ribbons. Frames for miniatures or pictures. Coffin furniture; real gilt; plated; brass; and improved black, &c.

[Brass is a composite metal, its base being copper, the addition of zinc, in various proportions, transforming it into a yellow metal. It is very ductile, and is capable of being drawn into wire, flattened, or laminated into sheets, the latter operation being effected by means of rolls, which are propelled by machinery. It is in this state that it is used by stamped brass-founders. Stamped brass-foundry is

produced by means of a "matrix, or die," a "reverse," and a stamp. The "die," formed of steel or cast-iron, is fixed by four screws to the bottom of the stamp; the "reverse" is attached to the hammer. Pieces of thin brass are selected and cut to size, one of which is laid on the die; the hammer is released, and the "reverse," which is attached thereto, falls with it, and forces the thin metal into the matrix. It is then annealed: some slight alteration is made in the "reverse," by means of which it impresses more deeply, by its action from behind, forces the thin plate into the die, and thereby copies accurately all the details marked therein. Repeated annealings follow, and in many instances twenty or thirty blows are given before the article is "brought up." The nature of the operation precludes undercutting. All portions of the "reverse" must be tapering; the die must also be the same. Globular articles are stamped in halves and soldered together thereafter.—W. C. A.]

264 LINGARD, G., 67 Snow Hill, Birmingham—
Manufacturer.

Patent dovetail lock, having one solid bolt working in a dovetail slide, with the lock and tumblers themselves in the bolt, reducing the several parts of a lock into but two leading ones, viz., the bolt and frame; the dovetail, like a wedge, keeps bolt and frame inseparable, allowing it still complete action. The key, though small, acts as well as a large one, and gives equal security.

Patent dovetail lock, showing the action when fitted.

Registered air-vent cock: when the plug is turned on for the purpose of drawing liquor, the air enters the outer tube, and passing through the plug down the shank, into the barrel, causes the liquor to flow, rendering a vent peg unnecessary.

Coffin furniture, in gold, silver plate, British plate, brass, and tin japanned, also medal and button dies, &c. Patent table furniture, glass movements, window fasteners, &c.

265 ARATE, FELIX, 3 Ernest Street, Albany Street—
Inventor.

Specimens of a new art, called metallography, which consists in printing and ornamenting any kind of metallic surfaces, so that bright letters or ornaments appear as though they were inlaid upon a dark, coloured, or wood-like surface. This is effected by two different processes, the one, electro-chemical, and the other, chemical; applicable to the painting of ordinary inscriptions, names of streets, door-plates, shop-fronts, sign-boards, show-bills, &c.; and for printing illustrations from wood-cut engravings, maps, and any ornamental printing.

A zinc board, with an ornamental border, and an inscription in the centre. Table of zinc, ornamented.

Zinc and brass ornamented tubes, for cornice poles.

Zinc plates, printed from wood-cut engravings.

Board covered with tinsel, containing the words "provisionally registered."

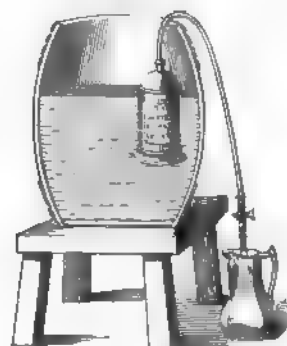
Three working models of machines for smoothing, planing, burnishing, and ornamenting sheets, bars, and tubes of metal or wood. Various specimens performed by the same machines upon metals and wood. The above inventions are provisionally registered in Great Britain and Ireland, and patented in France and Belgium.

266 WILKES, J., Birmingham—Manufacturer.

Specimens of locomotive and marine boiler tubes. Brass and copper gas tubes, and wire. Sheet brass.

267 BIRD, A., Birmingham—Inventor

Hydrostatic syphon water purifier, intended to be dropped into any vessel containing water, and the pipe hung down outside, in which position it acts as a syphon. The following cut represents this purifier in action.



Bird's Syphon Water-purifier.

The Victoria night-light—may be used like candle; it burns twenty hours, and emits no smoke. This night light is shown in the following cut.



Bird's Victoria Night-light.

268 WINTON & SONS, 53 Cleckland Street, Birmingham—
Inventors and Manufacturers.

Spoons, &c., in electro-plate, ivory, and pearl; some of new design. Improved tinned-iron spoons, exhibited for quality, form, and cheapness.

Skewers, ladles, shoe-lifts, &c. Taps, cocks, joints, &c., in brass and other metals.

Tablets and name plates, of new material and manufacture. Freeman's lecture tablet.

269 SMITH, THOMAS HENRY, 20 Brewer St., Golden Square—
Designer and Manufacturer.

Stove ornament for the summer season, intended to supersede the use of paper, enclosing the stove, but allowing free ventilation. It can also be used where fire is not required, and made air-tight by the insertion of plate glass.

Design for a centre ornament for a ceiling (forming the star of the Order of the Garter), composed of upwards of five thousand postage stamps.

270 SIMONITE, JOHN, Pope Street, Birmingham—
Manufacturer.

Tinned wrought iron culinary utensils, consisting of soup and vegetable ladle, skimmer, meat fork, peel plate or cake turner, and basting ladle.

Tinned wrought-iron tureen ladle, and water-bowl, or wash-hand basin.

Improved forged japanned wood-handle stove shovel, dust pan, and cinder sifter.

Copper parlour coal shovel. Strong forged kitchen fire shovel. Galvanized iron socket manure bowl.

Wrought-iron melting ladle for plumbers; pitch, or seaming ladle.

Tinned wrought-iron cook's ladles, with flat side, for ship's use.

Japanned iron and galvanized sail thimbles, and ship's hooks and thimbles.

Tinned wrought-iron tinmen's furniture, and table and basting spoons.

[This collection of useful articles is manufactured of wrought iron, and is produced by the ordinary methods of hammering, swaging, &c. The three methods are here shown by which such utensils or fittings are preserved, viz., tinning, galvanizing, and japanning. The first process is effected by pickling the iron to be tinned in a weak solution of oil of vitriol, which removes the scales, it is thereafter dipped in sal ammoniac and resin, and immersed in a bath of melted tin, which adheres to and forms a protective coating. The so-called galvanizing process, viz., coating with zinc, is effected in a similar way; the iron is cleansed, and after the same course of proceeding, is immersed in a bath of zinc metal. Japan is applied with a brush, and the article thereafter is stored to dry.—W. C. A.]

271 HICKMAN & CLIVE, 34½ William Street North, Birmingham—Manufacturers.

Coffin furniture, consisting of inscription-plates, handles and plates, head, foot, and other ornaments.

Coffin furniture is produced by pressure from thin plates of metal in dies formed of cast iron or steel.

273 SHENSTONE & MILLS, 25 Mary Ann Street, Birmingham—Proprietors.

Specimens of polished fire-irons, locks, chest handles, snuffers, percussion caps, &c., as illustrations of cheapness. Embossing press for stamping receipts and other purposes. Copying presses.

Metallic tokens, checks, address cards, and labels. These metallic tokens and address medals are used by tradesmen as an advertising medium. Vests and other brass boxes. Samples of embossed and coloured envelopes.

Cases of knives and forks, paper knives, &c., with deer's and fawn's feet handles.

274 MOORE, PAUL, & Co., Great Lister Street, Birmingham—Manufacturers.

Brass stop butt hinges. Brass hinges for cabinet, building, pianoforte, and ship purposes.

German silver and embossed electro-plated hinges for ornamental articles of furniture, whether of timber or papier maché.

Rolled sheet brass slit, showing process of making plain and embossed wires.

Brass locomotive tube. Brass and cased tube. Brass, copper, and iron wire, round and square. Tinned iron wire. Wire for horticultural purposes.

Rolled brass, latten brass, and brass polished on one side. Pattern brass sash bars.

275 HORN, THOMAS, Cleveland Street, Birmingham—Inventor and Manufacturer.

Collection of hinges for the South-American market, and for general purposes.

276 WOLVENSON, EDWIN, 2 Ashton Terrace, Birmingham—Inventor and Manufacturer.

Secure lock, with an improved detector, and a new combination of levers. If the levers are moved by a false key, the new detector is thrown, the bolt becomes immovable, and the combined levers assume a position which renders it impossible to open the lock except with the right key. It is said this lock cannot be picked.

277 JONES, R., & SONS, Birmingham—Manufacturers.

Specimens of cork-screws.

278 ROWLEY, CHARLES, Newhall Street, Birmingham—Manufacturer.

Patent and registered articles—Shawl pins, shirt studs, brooches, and dress-fasteners. Livery, naval, and military buttons, showing the devices and shields for officers; also the belt-plates and sword furniture used in the British navy.

Wire loop brace buttons and eyelet-holes, which, from their construction, prevents the cutting of the thread by which they are fastened.

Whip and stick handles, with an ever-pointed pencil-case introduced.

[Buttons of this kind are produced by cutting out the blanks from rolled metal, they are concaved by stamp, the eyes are soldered on, they are then cleansed, gilt, and burnished; the impression is given by means of a die attached to a stamp, which completes the manufacture.—W. C. A.]

279 TWIGG, O. & WILLIAM, Summer Hill, Birmingham—Manufacturers.

Specimens of buttons, plain, fancy, gilt, plated, for livery, military, naval, and sporting purposes. Glove and brace buttons. Fancy mounted glass and pearl buttons. Steel brooches and buttons. Shirt studs.

Registered fastener for coats, victorines, mantles, garters, &c.; and dress pin fastener, with slide spring, to secure a shield on the point of the pin.

280 WILLIAMS, THOMAS, Helstone—Inventor.

Model of an iron safe. The novelty is the introduction of water round every part of the inner case. The construction of the joint for conveying the water to the outside door from the body of the safe is also new.

Model of an axle for a carriage, with box complete, having a hollow perforated arm to the axle which supercedes the wells to the usual oil-boxes; the oil can be supplied quickly at any time, and, from the arm being perforated, the oil is equally used.

281 POCOTT & Co., St. Paul's Square, Birmingham—Manufacturers.

Specimens of naval, military and livery, plain, fancy gilt, and plated buttons. Glass buttons in great variety. Chased and enamelled studs for shirts, &c. Bronzed sporting and other buttons, suitable for coats. Link and tag buttons, for foreign markets; four-hole metal buttons for trousers. Medals, coat links, gilt and plated fasteners and slides for dresses. Buttons suitable for ladies' and children's dresses.

The naval, military, livery, gilt, plated, and other buttons, are made with the exhibitors' improved riveted and soldered back and shank, which will neither break off nor become loose, and is therefore of great importance for all buttons which are required with fast shanks.

282 HAMMOND, TURNER, & SONS, Snow Hill, Birmingham—Manufacturers.

Cases of various descriptions of naval, military, sporting, and club buttons, gilt, plated, bronzed, &c. The sporting buttons in the centre of these cases depict the various national sports of Europe.

The centre button exhibits a bust of Queen Victoria, executed by W. Wyon, R.A., and arranged round it are the sporting buttons before mentioned, on which are portrayed fox hunting, deer stalking, boar hunting, bull fighting, bear hunting, wolf hunting, and chamois hunting. In the squares around, are arranged a variety of chased, enamelled, &c., buttons for vests; and the large figure of a diamond is composed of numerous descriptions of livery, club buttons, &c.

Selection of fancy gilt buttons, suitable for dress coats. Assortment of bronzed sporting buttons, both in simple and fanciful designs. It is usual to have each button of a different pattern to compose a set for a coat; a large number of expensive dies are required to produce a variety.

A complete variety of pearl buttons. This article demands considerable skill and practice on the part of the artisan, and is now one of great importance in the button trade, employing in Birmingham, where they are almost exclusively manufactured, upwards of 2000 pairs of hands.

[The mother-of-pearl shell is, as is generally known, obtained by divers from the bottom of the ocean; and is, in fact, the oyster in which the gems, usually called pearls, are found. The best description of white mother-of-pearl shell, are found in the East Indian and Chinese Seas, and are brought to market chiefly at Manilla, Singapore, and Batavia. The black shell is a peculiar species, found in the waters of the Pacific among the Polynesian islands.]

283 ASTON, WILLIAM, Princep Street Works, Birmingham
—Manufacturer.

Florentine buttons, black and coloured; finished by steam machinery. Improved Florentine buttons, with silk backs. Linen and Holland buttons. Covered buttons, in silk, satin, and various materials, coloured. Upholstery buttons, in leather, horsehair, chintz, moreen, worsted damask, tabaret, and figured satin.

Series, illustrating the manufacture of buttons.

[In the yearly consumption of material arising from the manufacture of covered buttons in a single factory, the subjoined quantities of the various textile and metallic substances are used. In the works, 400 individuals are engaged; they are principally women, assisted by children, skilled workmen being employed to correct the tools and construct the machines. In 1850, were consumed as follows:—

	Yards.
Of 3-4 Florentine lasting	47,865
Lion skin and woollen cloths	162
Vesting fabrics	398
4-4 Irish linen	3,011
Figured velvets and satins.	693
Silks	2,126
Black and coloured satins	1,182
Black and coloured silks and velvets	1,017
Sundries	200
Strong canvas	26,587½
Silk for silk backs	3,579
White linen drill	1,471½
Of best charcoal iron weighing per superficial foot 4 to 5 oz.	514,900 ft.
Of button-board (paste-board)	33,391 lbs
65,000 gross of iron brace-buttons were made from 2 ton of iron, in measure equal to sup. ft.	32,638
23,000 gross were also made from brass and mixtures of copper and plated metal.	
In light steel toys, viz., buttons, clasps, and fastenings for ladies' dresses, were consumed upwards of 5 tons of sheet steel.	

When the cutting-out of the parts is performed by hand, one-third of the material goes to waste, owing to the circular form of all parts of the button. In this case, however, it is performed by machinery, which effects a very great saving of material. Fifteen machines are employed. They are automatic, and work well.—W. C. A.]

Shell suspender and gaiter buttons, in japanned iron, silvered brass, silver and gold plate; with specimens of patent buttons suitable for great coats. Solid suspender and gaiter buttons, in japanned iron and silvered brass, with holes countersunk on both sides. Japanned iron shell jet and steel buttons. These articles are new, some being a half, and the others an entire ball of hollow steel, cut in various shapes, and polished. Steel dress-fasteners and ornaments, plain and fancy cut.

[The light steel toy-trade, which includes buttons, clasps, fastenings, brooches, &c., and which has been revived with

profit within the last few years, is entitled to a brief note. The articles are cut out from sheet steel; they are curved by a stamp, and perforated by small tools fitted into a press; the small eyes and fittings for attaching pins are soldered on; they are case-hardened, and tempered in oil, the reflecting surfaces being cut into ornamental arrangements by soft metal wheels with emery and oil. They are next fastened on a revolving table, and a hard brush with emery upon it, is worked in a horizontal direction: a finer degree of polish is given with a softer brush and iron-stone powder; final brilliancy is given by putty powder and the palm of the hand. The cutting of these surfaces is a matter of taste, and depends much upon the art of the workman.—W. C. A.]

284 HARDMAN & ILLIFE, 38 Newhall Street, Birmingham
—Manufacturers.

Buttons, medals, hooks and eyes. The buttons include Florentine, silk (hand-made), patent linen, registered coat attachers, gilt and plated dress, military and naval.

285 NEAL & TONKS, 13 Great Charles Street, Birmingham
—Manufacturers.

Real stone and fancy glass buttons, for waistcoats; and for ladies' and children's dresses.

Shirt studs in glass, pearl, ivory, and jet.

Coat loops in stone and fancy glass.

Ladies' glove bands and bracelets.

Horses' bridle rosettes in fancy cut glass.

[Real stone buttons are formed, as their names indicate, from natural substances, cut and polished by the ordinary process of the lapidary. They are drilled with copper tools, revolving rapidly in a lathe fitted for the purpose, and the tool from time to time touched with emery and oil. Fancy glass buttons are made by "pinching." The glass is heated. A pair of pincer-like instruments, with the form of the button sunk in intaglio, is used to give the form, and the process consists in introducing the melted glass, and pressing the two parts together, when a button is produced. In some cases the eye is introduced into the interior of the glass at the time the button is made; in others, a hole is pinched in the button, the eye introduced, and rivetted with a small collar on the surface, which adds to the ornamental appearance of the fastening. Other varieties of glass buttons are made by taking sheets of coloured glass, the back of which has been "quickenet" (coated with lead), in the manner of silvering, cutting it into small squares, equal to the diameter of the button; the corners are taken off by clipping. The back of this variety is formed of metal, cut out in the manner of "blanks," to which the eye is soldered by hard solder; the glass is heated, the "quickenet" melted, the metal back also being tinned and heated, the two parts are placed together, and a junction is effected by the ordinary adhesive properties of the solder. The button is finished by grinding the edges, surfaces, &c., and like cuttings are given by the ordinary glass cutting and polishing process. Glass rosettes, for saddling purposes, are produced in the same way. The two colours are given by cutting through the coating of coloured glass to the colourless flint glass, which forms the foundation.—W. C. A.]

286 CHATWIN, J., & SONS, 92 & 93 Great Charles Street, Birmingham—Manufacturers.

Samples of buttons—silk, fancy, and plain; patent braided edge, rich velvet, &c., with specimens illustrative of the process of making. By this process a covered silk button, with a strong woven braid or edging, is made with less than half the silk formerly required. A selection of fancy, gilt, patent electro-plated, and patent linen buttons.

Upholsterers' and coachmakers' nails for furniture, covered in the same way as covered buttons. A selection of black and white pearl buttons; bronze, fancy glass, and Cox's patent horn buttons.

287 BAKES, EDWARD, *Birmingham*—Manufacturer.

Mother-of-pearl shells used in the manufacture of buttons. Mother-of-pearl buttons, for ladies' dresses, gentlemen's overcoats, coats, vests, shirts, &c. The material is from the Gulf of Persia and other places, including the Sooloo Islands, the shores of which afford the largest and finest yet discovered.

288 FREARSON, JOHN, *Gas Street, Birmingham*—Proprietor and Manufacturer.

Hooks and eyes to fasten ladies' dresses, &c.

289 KNOWLES, H., *Howard Street, Birmingham*—Manufacturer.

Gold-plated enamelled buttons.

290 WELLS, J. T., *Birmingham*—Manufacturer.

Patent horn-buttons.

290A LONG, JOSEPH & JAMES, & Co., 20 *Little Tower Street*—Inventors and Patentees.

Patent curvilinear window blind pulley, by which the cord can be regulated to its proper point of tension, without its slipping back or being strained too tight.

291 PHILLIPS, HENRY, 116 *Unitt Street, Birmingham*—Manufacturer.

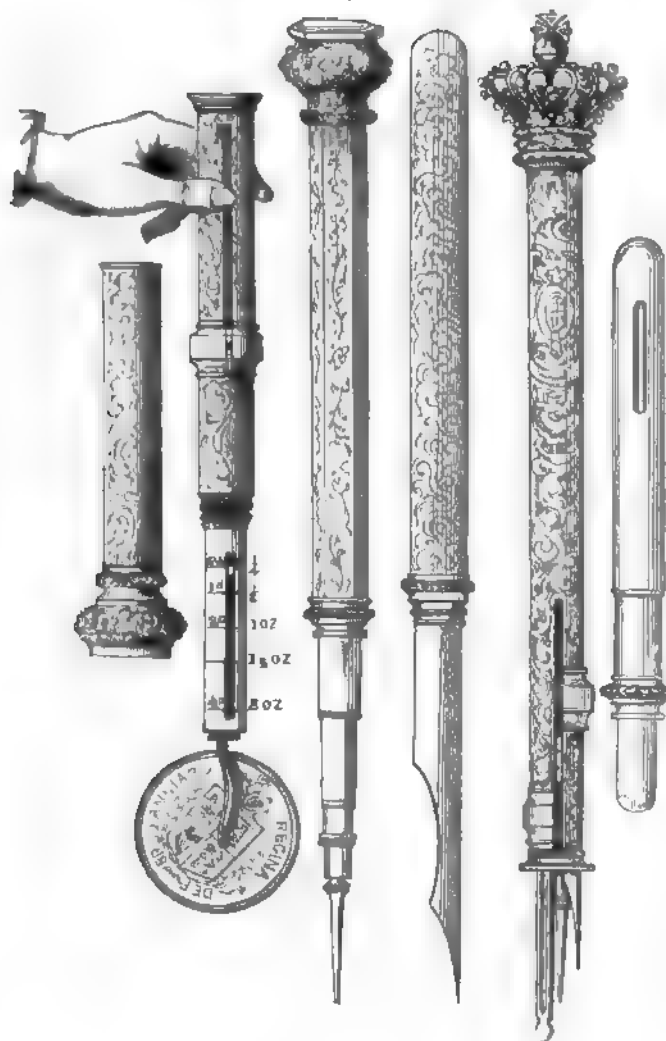
Gold and silver guard chains, brooches, bracelets, &c

292 SHELDON, J., 55 *Great Hampton Street, Birmingham*, and 33 *Ruckersbury, London*—Inventor and Manufacturer.

Gold ever-pointed pencils, with solid gold mounts, set with real stones, and ornamented with varieties of rose engine-turning, engraving, and chasing.

Gold ever-pointed pencilcase, engraved with Her Majesty's arms quartered with H.R.H. Prince Albert's, the top of the pencil surmounted with the royal crown, set with ruby; this case contains an ever pointed pencil, penholder, toothpick, half-sovereign gauge, a letter and coin balance

This pencilcase, with its various combinations, is represented in the following illustrations.



Sheldon's Gold Everpointed Pencils.

Gold pens, union gold and silver pens, and silver pens with iridium points, a metal so hard that ten years' constant use is said not to produce any sensible wear; penholders of silver and gold, with an ever-pointed pencil, &c.

Similar articles in silver, electro-plated, and nickel silver of various styles, with balances accurately graduated for various scales of postage, coins, &c.

The fountain music-writer, in electro-plated and nickel silver, for making crotchet or quaver dots with speed, uniformity, and accuracy; with a penholder.

Royal Albert pocket requisites, an ever-pointed pencil, penholder, and penknife, in silver and electro-plated.

Silver single and double spiral ever-pointed pencils; elongating or telescope pen and pencil; and sliding pencils. German silver ever-pointed pencils and pencases.

Penholders in silver and electro-plate, mounted on ebony, ivory, pearl, and porcupine-quill handles.

Pocket escritaires, made of a metallic body covered with leather, containing a letter balance, with penholder, inkstand, steel pens, and other useful articles.

Electro-plated and nickel-silver spoons, forks, ladles, butter-knives, fish-carvers, sugar-tongs, meat-skewers, &c., in plain, fiddle, threaded, and Victoria patterns.

Electro-plated and nickel-silver snuff, tobacco, and pipe-boxes, pipe-cases, &c. Silver, electro-plated, and nickel-silver fusee-boxes. Brass and japanned pipe and tobacco-boxes, and tobacco pipe-cases, &c., in various styles.

[The class of articles here described exhibits one of the peculiarities of the Birmingham trade, viz., the variety of different manipulating operations carried on at one manufactory, and the attempt to adapt the articles produced to a great variety of different purposes. Pocket escritaires, containing within the size of an ordinary pocket-book all the materials for correspondence, pens, ink, paper, wafers, &c., present a curious contrast with the same class of articles in use a few years ago. The introduction of German silver has materially facilitated the production of the smaller class of articles, such as pencilcases, penholders, &c. Pencilcases are formed of mandril-drawn tubes, that is, tubes which are drawn through a steel hole, and their external diameter supported by a steel mandril. This is cut to the necessary length, and adorned externally by engine-turning or some other process. In ever-pointed pencilcases (which have now almost entirely superseded the older kind), the fitting of the magazine at the top, the combination which produces the ever-pointed action, gives employment to many artisans.—W. C. A.]

293 ALLEN, F., *Birmingham*—Manufacturer.

Silver and gilt filigree work.

294 GOODE & BOLAND, 24 *St. Paul's Square*, *Birmingham*—Manufacturers.

Patterns of guard-chains, bracelets, Albert chains, necklaces, brooches, and rings.

Specimens of jewellery, chains, &c., manufactured from the raw material.

Samples in the rough and subsequent stages.

Specimens of blood-stone, slit by a self-acting machine.

[Slitting of stones is effected by means of a disc of soft iron called a slicer, which revolves very rapidly, and is occasionally touched with diamond-dust. This exhibits the paradox of a soft substance cutting a hard one. A steel file is readily cut by a soft metal disc.—W. C. A.]

295 SMITH, KEMP, & WRIGHT, 165 *Brierly Street West*, *Birmingham*—Manufacturers.

Buttons of gold, silver, copper, brass, iron, tin, lead, zinc, steel, glass, wood, bone, papier-mâché, brass gilt by mercury and electricity, enamelled, silvered, lacquered, bronzed, and japanned, black mother-of-pearl shell, white mother-of-pearl shell, green ear shell, and green snail shell.

Registered shirt studs, gold, silver, gilt, pearl chased, enamelled, and engraved; also composed in different pro-

portions of most of the materials enumerated and designated run-buttons, being made of several pieces as concentric rings, so fastened and held together as to form one button.

[The old method of gilding is distinguished from the electro process, by the gold used in the operation being reduced to an amalgam by means of mercury, which readily unites with the gold, and forms the gilding mixture. The buttons to be gilt are placed in a pan, some of the amalgam introduced, and sufficient nitric acid being sprinkled upon them in order to remove any extra oxidation; the acid, and lastly the amalgam, is diffused over the whole of the metal to be gilt, and the fumes of the mercury are evaporated by heat.—W. C. A.]

296 WALTERS & STONE, 28 *Ludgate Hill*, *Birmingham*—Manufacturers.

Lady's mausoleum ornament. Black ornaments, as brooches, &c.

Chatelaine, brilliantly set, containing devices, &c., formed with human hair. Human hair worked as bracelets, &c.

Ladies' brilliant finger-rings, each forming a finger-ring and an armlet. Brilliant, mounted as a gentleman's finger-ring, pin, and stud. Mounted medals.

297 BIDDLE, JOHN, 23 *Victoria Street*, *Birmingham*—Manufacturer.

Seals, penholders, letter-clips, book-clasps, and mountings.

298 PARKER & ACOTT, 54 *Brierly Street West*, *Birmingham*—Manufacturers.

Good and silver pencils and penholders, of various kinds. Gold tooth-picks, seals, and keys.

299 BALLENT, J., *Birmingham*—Manufacturer.

Specimens of gold and plated jewellery. Gilt ornaments and toys. Black ornaments. Steel, steel gilt, and other spectacles.

Cenotaph under a glass shade, "to the late Sir Robert Peel," exhibited as a specimen of workmanship in the black ornament trade.

300 ALLEN & MOORE, 35 & 36 *Great Hampton Row*, *Birmingham*—Designers and Manufacturers.

Vesta match-boxes; cigar boxes. Taper-stands and lamps; and other fancy articles in metal.

Case of medals:—Head of Prince Albert, and view of the Exhibition building. Duke of Cambridge, and Governesses' Asylum. Frederick Von Schiller. Jenny Lind. Cavaignac. Louis Napoleon. Heads, from Da Vinci, Scheffer, &c.

Metal buttons:—Naval, military, livery, sporting, fancy, four-hole, and glove buttons.

[Vesta Boxes, Medals, and Medal Making.—A new branch of manufacture has been called into existence by the introduction of the lucifer-match. The square paper and the round timber box have given place to an elegant metallic case used for the purpose of containing the "Vesta matches." The mode of production may be thus described:—a mandril-drawn tube is taken and cut into lengths in a lathe; a portion is turned down or reduced to fit the lid; this is reversed, and the end with its rough surface against which the match is to be rubbed in order to procure a light, is checked, in. The portion of tube which forms the lid is now taken, placed upon a chuck, and the head or cover is checked in, after the manner of the bottom. For certain varieties, a small socket is used to hold the taper, which is nutted into the lid; other varieties are fitted with springs, into which the match is stuck, the simple attempt at removal producing ignition. The ornamentation is effected by coating the brass with a

transparent varnish or lacquer of various colours, which is cut through in a series of lines, displaying floral or scroll devices by means of an embossing machine. This machine somewhat resembles a pantograph;—a cylinder of steel upon which the pattern is engraved is placed so as to act against the end of a long rod, the other extremity of which cuts away the lacquer on the brass box. Thus in an ingenious manner the pattern on the steel cylinder is reproduced upon the match box. Cigar-cases and taper-stands, with magazines or receptacles to hold matches, cigars, and tapers, are now produced in immense numbers by the same process of manufacture.

The Industrial Exhibition of 1851 has called into requisition, among others, the skilled labour of the medallist die-sinker. As a consequence, medals of all kinds and prices are being produced. A medal die is thus formed. Steel of a uniform texture and suitable kind being selected, it is forged, softened by annealing, and the face and chuck for the collar turned. The design approved of, the die-sinker proceeds to cut away those parts of the greatest depth by means of small chisels, the more minute details are taken out by gravers, chisel-edged, and gauged steel tools fitted into wood handles, very short, and to fit the palm of the hand. As the work proceeds, proofs are taken in wax, when defective in form, the cutting is corrected, and if deficient in relief, it is sunk deeper. It will, of course, be borne in mind that what will be relieve in the medal is intaglio in the die. The inscription is introduced by means of small letter-punches. Then follows the hardening of the die, a stage of the business the most critical, as a defect in the steel will at once be made apparent thereby, and the labour of months rendered useless in a few minutes. If the die endures this, it has only another test, viz., the making of a "hub," or copy of the die in steel, and used for the correction of duplicate copies of the die. The danger in this case arises from the want of uniformity of hardness. If irregular, one portion of the original die must suffer, and becomes valueless.

Medal-making or stamping is thus carried on:—The press consists of a large and close-threaded screw, to the top of which a large wheel is attached horizontally. The bed of the press is fitted with screws to secure the die in its place; when this is done, the collar which gives the thickness of the medal is fitted on, the die forming the reverse of the medal is attached to the screw; a blank (a piece of metal cut out to form the medal) is then introduced. Motion is imparted to the wheel which operates upon the screw, a blow is given, and if the impression is soft and shallow, a medal is produced; but if deep, repeated blows are given to bring the impression up. Where bronze or silver is the material in which the medal is to be produced, as many as 20 or even 30 blows are necessary. The medal is then taken out of the press, the edge turned, and the operation is complete.—W. C. A.]

301 **ASTON, J.**, 20 *St. Paul's Square, Birmingham*—
Manufacturer.

Ornamental silk, satin, and velvet buttons, dress ornaments, and patent linen buttons.

302 **ELLIOTT, WILLIAM, & SONS**, *Regent Street Works, Birmingham*—Manufacturers.

An assortment of fancy buttons for ladies' dresses. Specimens of gilt, plated, military, naval, sporting, crest, and ball buttons.

Patent silk, velvet, satin, Florentine, and patent Irish linen buttons.

Pearl buttons with metallic rims.

303 **AYERS, E.**, 72 *Northall Street, Birmingham*—
Manufacturer.

Patent improved shoe-scraper.

304 **INGRAM, T. WELL**, 85 *Bradford Street, Birmingham*—
Designer and Manufacturer.

Specimens of horn buttons, illustrating the manufacture prior to the patent, and the improvements made since, also materials from which they are made.

[The ornamental surface is given by pressure in a die when the horn has been softened by heat. W. C. A.]

305 **HEELEY, JAMES & SONS**, *Mount Street, Birmingham*—
Manufacturers.

Chatelaines, with various appendages. Sword hilts for dress swords. Latchets. Court and other buttons. Snuffers. Patent revolving stirrups. Cork-screws. Boot hooks. Key-rings. Tweezers. Swivels. Netting-vices. Bracelets. Brooches. Shawl pins. Waist buckles. Purse-mounts. Shides and tassels. Albert chains and keys. Watch-guards. Various keys. Invalid tongs. Purses and various trinkets.

[Steel buckles, formerly much used, as well as buttons, purses, clasps, keys, rings, and chains, were manufactured in great quantities at Birmingham. Some idea may be formed of the complexity of pattern in buttons, when it is stated that as many as three hundred ornamental headed studs have been counted on a single button. Steel guard chains have, of late years, been introduced with success; the links of these are cut out by the press, and pierced by the same instrument; they are then case-hardened and polished.—W. C. A.]

306 **OTTLEY, THOMAS**, 122 *Snow-Hill, Birmingham*—
Designer and Manufacturer.

Gold, silver, and bronze prize medals, including agricultural, horticultural, botanical, and school medals; also, historical and other medals.

[The art of die-sinking in England has its centre in Birmingham, and has reached a degree of unparalleled perfection and of immense importance. The art is of so peculiar a character, and requires so much nicety and so large an experience in tool craft, that it employs, in the higher departments, comparatively a small number of workmen, but in the commoner, a large number are constantly occupied. Medallists have always ranked highly among the die-sinkers of Birmingham; and the Soho works, in addition to a large production of medals, were for a considerable period the mint for the copper coinage of the United Kingdom. At present, the medallists of Birmingham are in full occupation for the preparation of medals for prizes, and in commemoration of great occasions. The medals thus produced are extensively demanded at home, and have also an extraordinary circulation on the Continent, and in distant parts of the world.—R. E.]

307 **COTTERILL, EDWIN**, 101 *Henry Street, Ashford, near Birmingham*—Inventor and Manufacturer.

Patent climax detector locks, made to the keys; and from the peculiar construction of the machine by which the keys are made, two locks cannot be made alike, unless formed from the keys cut at the same time. They can be made to shoot any number of bolts both ways.

309 **EYKYN & MILLICHAPE**, 50 *George Street, Parade, Birmingham*—Inventors, Patentees, and Manufacturers.

Carriage axles on the Collinge principle, with patent safety and other improvements.

[These improvements consist in the application of a thread, which traverses the back of the axle near the collar; a corresponding hollow thread is cast on the bush; after the bush has passed these threads a flat is left, on which it traverses or revolves. This arrangement effectually secures the wheel against removal.—W. C. A.]

Collings axle without the improvements.

An axle; patent axle arms on the mail principle.

310 NASH, RICHARD, 20 Russell Street, Birmingham—Proprietor.

Dies and small tools. Spoon and collar dies. Medal dies, and collar, coin, and office-seal dies. Button and shank hole dies.

[Much of the Birmingham jewellery and gilt toys are produced by means of dies or steel blocks, with impressions of articles to be sunk therein. Ear-rings, brooches, bracelet-fastenings, have their ornamental features impressed in this way; they are then filled up or joined together, if made in parts.

By "collar die" is meant that portion which gives the thickness of the medal or coin to be struck. All medal dies are in three parts, viz., the reverse, obverse, and collar. The smaller class of dies are cut in steel entirely, the larger kinds, for brass foundry and other purposes, are "laid" or cored with steel on a foundation of iron. When indentations occur, the die is what is called "fullered" or hollowed, and the steel follows the same in a parallel thickness.—W. C. A.]

311 JACKSON, W., Birmingham—Manufacturer.

Anvil for planishing tin plate. Hammers assorted for tin and copper work. Cress iron, or wiring stake, for tin. General swage, to hold different tools for beading tin. Bick iron, for tin plate, and side stake, for tin or copper work.

Bottom stake, for planishing copper. Pair of stock shears and hand shears, for cutting tin, copper, &c.

Model of a raising machine, for raising dish covers, 1½ inch in scale.

[Many of the requisites for the tin plate making are enumerated in the above collection of articles, and though "raising" by means of "spinning" and stamping has to a great extent superseded the older methods of tin-plate working, the polished anvil, stakes, or beak iron, with their corresponding planished-faced hammers of various forms, cannot yet be dispensed with. In the new mode of production, seam-soldering is entirely avoided. "Spinning" imparts to tin goods a considerable degree of firmness and solidity with denseness of texture. Moulding is still necessary in the manufacture of certain articles, to effect this, stakes, anvils, and swages must be put in requisition. Dish covers were originally formed by hammering out of flat sheets of metal; many of them here are raised by the stamp, and present a brilliant polish. Tin plate making, and tool making for the same, give employment to hundreds of artisans in and around Birmingham. W. C. A.]

312 TIMMINS RICHARD, & SONS, Pershore Street, Birmingham—Manufacturers.

Specimens of carpenters' hammer heads, and handled hammers. Carpenters' and farriers' tools. Shoemakers' tools. Timber scribes, hand and table vices, and improved coach wrenches. Saddlers' and upholsterers' tools. Various household and other utensils.

313 MASLY, JOHN, jun., 55 Broad Street, Birmingham—Patentee and Manufacturer.

Patent ornamental nails, bronze, silvered, gilt, lacquered, and covered, principally intended for attaching

the covering materials to furniture, &c. They can be made of various colours and materials at small cost.

314 TYE, GEORGE PIERCY, Snow Hill, Birmingham—Inventor.

Specimens of registered root-glasses, with stands and supports, containing wax models of hyacinths, to show the use of the flower support.

Glasses and stands. Registered spring labels for tree and flower-pots.

315 REYNOLDS, JOHN, Crown Nail Works, Newton Row, Birmingham—Manufacturer.

A case enclosing a card of cut nails, consisting of upwards of two hundred distinct varieties of the most useful strengths and sizes, made of iron, zinc, brass, and copper.

[In this manufacture, sheets of iron, of the proper thickness, are cut across by a pair of cutting edges which are set in motion by machinery; the breadth of these strips is equivalent to the length of the nails to be produced from them; the strip, for the convenience of turning, is fastened into a pair of grips attached to a wood shank, seating, when in use, upon a support immediately behind the workmen. The nail machine consists, essentially, of a pair of cutting-chisels or edges, which work perpendicularly, parallel to each other; a gauge to determine the breadth of nail; a pair of grips, into which at the time the wedge of iron falls, and where it is firmly held, until the small horizontal hammer strikes it and produces the head, when it is dropped into a box beneath. Brads are not headed, but are simply cut out of each other, that is to say, a deficiency in the parallelism of the cutting-edge produces the head, and prepares for the head of the next brad to be cut therefrom. Glaziers' brads being simple wedge-like pieces of iron, without any head whatever, are produced by the simple operations of the chisels or cutters. When tanks are blued, they are done in quantities, by exposing them to heat in an oven or muffle, or upon an iron plate. Japanning is performed by the ordinary process.—W. C. A.]

316 HENN & BRADLEY, The Upsale, Birmingham—Manufacturers.

Taper wood screws in iron, brass, and copper; iron thread screws for machinery of every description, and for stoves, grates, &c.

Taper hand-rail screws, adapted for pianoforte-makers, and fine cabinet work.

[Screw making.—Operation 1. From a coil of wire placed on a wheel and introduced into the screw-making machine, a piece, sufficient to form a screw is cut off, caught up, and headed, that is to say, the portion which forms the head is compressed into shape, and the now-called "blank" is dropt into a receptacle below. Operation 2, consists in flattening the head and smoothing the countersink, which is performed by the "blank," being held in both clams, and having a small cutter revolving in front and another behind. 3. Slitting the head; the "blank" is placed in a pair of nippers, which is moveable on centres by means of a lever action, the head is pressed against a small revolving circular saw, and the slit made. 4. Threading is effected by the "blank" being introduced into a pair of clams which is attached to a spindle, the back part of which is cut with a worm or thread corresponding to that of the screw to be cut, and which propels forward the clams and the "blank" against small-toothed cutters, which groove out the thread, three runnings down is sufficient to complete the manufacture of an ordinary sized screw. The difference in the finest threads arises from the shape of the cutters. W. C. A.]

317 JAMES, JOHN, *Redditch, near Bromsgrove*—
Manufacturer.

Specimens of needles and fish-hooks. Needle-boxes, furnished. Needles and fish hooks in the various processes of manufacture.

318 HAWKINS, JOHN, *22 Princep Street, Birmingham*—
Manufacturer.

Wood screws in iron, brass, and copper; railway, coach, and grate, machine screws, and bolts.

319 BAKER, GEORGE, & Co., *68 Canal Street, Birmingham*—
Wireworkers and Manufacturers.

Fire guards and window blinds. House and stable lanterns. Rushlight guard. Nursery lamp. Candle shade. Fruit basket, lady's work basket. Dish and plate covers. Letter rack. Sir Humphrey Davy's lamp. Parrot and other bird cages. Squirrel cage. Flower pot stands. Mattress springs. Patent iron and brass chain, made by machinery, with varieties electro plated and bronzed. Specimens of weaving in iron and brass wire. Peg lattice and bare fences. Dome-top electro-plate twisted fire guard.

320 COOKSKY, HECTOR RICH., *148 High Street, Bordesley, near Birmingham*—
Manufacturer.

Specimens of coffin furniture, in plated gold and silver, and brass and tin japanned.

321 SIMCOX, FERNBERTON, & Sons, *Birmingham*—
Manufacturers.

Patent curtain decorations; curtain bands and cornice pole ends.

Furniture for mortice locks in brass, glass, china, white and gilt opal, with metal mountings gilt and electro plated.

Finger plates, bell pulls, and bell levers. Lacquered and bronzed finger-plates.

Outside bell-pulls, hall-door knobs, bell slides, in the Gothic, Elizabethan, and other styles.

Registered door-knockers and chains. Registered and other letter box plates.

Gothic and Elizabethan work for churches, consisting of hinges, lock handles, escutcheons, &c.

Letter clips, letter balances, date tellers, office and table bells, and wax taper stands.

Sconces of various designs for pianofortes, pictures, looking glasses, pulpits, wall brackets, &c.

Plain and wrought coat and hat hooks. Blind mountings. Door porters and folding fire screen brackets.

Registered and other casement stays, espagnolettes and sash fastenings.

Bell carriages, cranks, and general bell-hanging work. Registered stair and curtain rods; miniature and picture frames.

Registered and other rack pulleys, tassel hooks, roller blind ends, table catches and fasteners. Butt, and other hinges.

Socket, flush, ship, and other bolts; cabin-door hooks. Round, square, plate, and socket and claw castor for pianofortes, sofas, tables, chairs, &c. Lamp and screw pulleys.

Shop-door handles, in china, glass, opal, brass, &c.

[These contributions form illustrations of what is technically known as cabinet and general brass-foundry. The application of china, and more particularly glass, is now very extensive. The introduction of the brass collar to the china mortice knob, of stamped brass foundry in the form of drapery and rope work for upholstery purposes; and of an ingeniously-constructed blind mounting, which causes the blind to ascend, instead of descend, is due to these exhibitors.—W. C. A.]

322 CORNFORTH, JOHN, *Lockeley Street Wire Mills, Birmingham*—
Manufacturer.

Specimens illustrative of the manufacture of iron and other wires.—

A piece of iron, which has been rolled hot into its present form, and which is now called a wire rod. A draw plate of steel, through which part of this wire-rod has been drawn. The part of this wire-rod which has passed through the draw plate, and is now a piece of iron-wire. By a repetition of this process, iron-wire of any diameter may be made. In the specimen, the diameter of the wire rod has been reduced $\frac{1}{2}$ of an inch by one process, if repeated fifty times, it would give a wire $\frac{1}{1000}$ of an inch diameter. Pieces of iron wire illustrative of this process, from $\frac{1}{2}$ to $\frac{1}{1000}$ inch diameter.

Piece of telegraph wire, of charcoal iron, galvanised, drawn from one entire piece of iron; it is 336 lbs. weight, and a mile long.

Piece of charcoal wire, being a portion of that used in the construction of a suspension-bridge near the falls of Niagara; this iron-wire is used for wire-ropes and general engineering purposes.

Steel wire, of various sizes and qualities. Specimens of soft and hard tinned wire. Coppered iron-wire. Iron and steel wire.

Wire nails of various sizes and forms. Heads and points of nails manufactured by the patent process known as the Pont de Paris, and used by the carpenters of that city, and of France generally, which may be made of any form.

323 POTTS, WILLIAM, *16 Easy Row, Birmingham*—
Manufacturer, and, in part, Designer.

Ornamental bronzed and lacquered gas lamps.



Potts' Ornamental Gas Bracket.

An ornamental gas bracket and globe. This gas-bracket is represented in the above illustration. A helmeted head forms the support of the globe and burner.

Chandeliers, lobby lamps, hall lanterns, &c.

Candelabra, girandoles, ink and flower stands, and various other articles.

Bronze ornament—eagle resting with its prey on a rock.

Grand boudoir, glass frame, bronzed—two naiads are seated to attire themselves, two herons supporting pastile burners.

Single-figure and triple-figure epergnes, &c.

Specimens of Potts' patent picture-supporting moulding. Its advantages are, strength, continuous line as a moulding, adaptability for mitring at any angle; the hook can be attached on and slide along the back of the iron rail; a variety of designs and modes of finish can be obtained, the hook being in its attachment a segment of a circle, moves round the back curve of the rail, so as to be put on and taken off at any point.

Bronze clock stands—the Chinese dragon.

Fire-screen stand, adaptable also for a chess-table, music-stand, or reading easel.

Pair of heron girandoles. Boudoir candlestick.

Tazza or epergne—the crocodile.

Flower stand. Mirror frame.

324 GILLOTT, JOSEPH, Victoria Works, Birmingham— Inventor and Manufacturer.

Specimens of metallic pens.

[Steel-pen making may be briefly described as follows. The steel is procured from Sheffield; it is cut into strips, and the scales removed by immersion in pickle, composed of dilute sulphuric acid. It is passed through rollers, by which it is reduced to the necessary thickness; it is then in a condition to be made into pens, and is for this purpose passed into the hands of a girl, who is seated at a press, and who, by means of a bed and a punch corresponding, speedily cuts out the blank. The next stage is piercing the hole which terminates the slit, and removing any superfluous steel likely to interfere with the elasticity of the pen; at this stage they are annealed in quantities in a muffle, after which, by means of a small stamp, the maker's name is impressed upon them. Up to this stage the future pen is a flat piece of steel, it is then transferred to another class of workers, who, by means of the press, make it concave, if a nib, and form the barrel, if a barrel pen. Hardening is the next process, to effect this a number of pens are placed in a small iron box and introduced into a muffle; after they become of a uniform deep red, they are plunged into oil, the oil adhering is removed by agitation in a circular tin barrel. The process of tempering succeeds; and, finally, the whole are placed in a revolving cylinder with sand, pounded crucible, or other cutting substance, which finally brightens them to the natural colour of the material. The nib is ground with great rapidity by a girl who picks it up, places it into a pair of suitable plyers, and finishes it with a single touch on a small emery wheel. The pen is now in a condition to receive the slit, and this is also done by means of a press, a chisel or wedge, with a flat side is fixed to the bed of the press, the descending screw is a corresponding chisel or cutter, which passes down with the minutest accuracy the slit is made; and the pen is completed. The last stage is the colouring, brown or blue, this is done by introducing the new pens into a revolving metal cylinder, under which is a charcoal stove, and watching narrowly when the colour desired is arrived at. The brilliancy is imparted by means of lac dissolved in naphtha, the pens are immersed in this, and dried by heat. Then follow the counting and selecting. Women are mostly employed in the manufacture, with skilled workmen to repair and set the tools. This exhibitor employs upwards of five hundred hands, of which four

fifths are women. The manufactory has been established upwards of thirty years, and has been the means of introducing many improvements in the manufacture.—W. C. A.]

325 WILEY, W. E., & Co., 34 Great Hampton Street, Birmingham—Manufacturers.

Specimens of gold, palladium, gold and silver, and silver pens, pointed with the native alloys of iridium and osmium, the hardest of known metals.

[These pens being formed of metals not acted on by the ink, appear almost indestructible; their permanence in use is further maintained by the attachment to the point, by soldering, of a minute portion of the metals named, which are extremely hard and durable.—W. C. A.]

326 HINCKES, WELLS, & Co., Buckingham Street, Birmingham—Manufacturers.

Patent self-acting cutting, piercing, and raising-pen machine. The ordinary presses are worked by hand. The self-acting machines are driven by steam; they cut, pierce, and side-slit two pens at one stroke, performing six processes at once.

Specimens of Lilliputian pens complete, intended to show the skill of the tool cutter and the perfection of the machinery employed. A gross of the smallest weighs less than 34 grains, and can be contained in a Barcelona nutshell.

Specimens of finished pens.

Steel in its rough state, and after it has passed through the rolling-mill; scrap-steel, from which the pens are cut; pens, cut and pierced. The other processes exhibited in the finished pen.

Specimens of pierced pens to show the modern improvements in the art of tool-cutting.

327 KELL, A., & Co., 28 Summer Row, Birmingham— Manufacturers.

Steel pens; showing their different forms and qualities, with improvements lately introduced.

328 MITCHELL, WILLIAM, 6 St. Paul's Square, Birmingham—Manufacturer.

Metallic pens and penholders.

329 BARTLETT, W., & Sons, Redditch, near Birmingham, and 47 Gresham Street, City—Manufacturers.

Needles of every description, with the most important stages in the process of manufacture, from the wire up to the finished state.

Fish hooks, of every description, for sea, river, or lake fishing, with specimens exhibiting the different stages in the process of manufacture.

Fishing hooks are formed by simple tools: a bundle of wire is cut into lengths, and straightened; the barb is formed by a simple blow with a chisel; the opposite end is flattened—the barbed end pointed, they are then case-hardened, the surface being partly acted on and rendered extremely hard, by means of immersion in hot animal charcoal, they are subsequently brightened by friction, and tempered, in some cases they are japanned, in others tinned, but this refers only to the larger sizes.—W. C. A.]

330 BOLTON, WILLIAM, & Son, Fiddlers' Hall, near Birmingham—Manufacturers.

Needles sewing, netting, knitting, tamboir, crochet, rug or carpet, and chenille.

Steel meshes. Surgeons' needles. Stay, mattress, upholsterers', sail, and packing needles.

Sail hooks. Bodkins and needles in fancy-work. Harpoons used in whale-fishing.

Spears used in whale, shark, and dolphin fishing. Large sea fish-hooks. Hooks for fresh-water fishing.

331 HEMMING, HENRY, Redditch, near Worcester—
Manufacturer.

A general assortment of sea and river fish-hooks, adapted for the taking of all kinds of fish.

332 NICKLIN & SNEATH, 57 Bradford Street, Birmingham—Manufacturers.

Copper, brass, and iron weaving, of various meshes, from 64 holes to the square inch, or 8 mesh, to 22,500 holes to square inch, or 150 mesh.

Fine drawn brass and copper wire; copper wire drawn from a penny piece.

Strong iron weaving, for kiln floors, smut machines, &c.

Brass wire cloth with seams, as used for paper machines, in the manufacture of paper.

[The extreme ductility of brass is shown in the manufacture of wire. A mass weighing 15 grains has been drawn into 181 yards. It is drawn by hand through metal holes or plates, soap being used to lubricate the wire, in order to prevent adhesion, and to give it a finished and smooth surface.—W. C. A.]

332A MARTIN & GRAY, Berkeley Street, Birmingham, and 14 Gough Square, Fleet Street—Manufacturers.

Gas chandelier, finished in gold colour and "artistic bronze." Pattern, finished in artistic bronze and gold colour, relief. Gas brackets.

Two chariot lamps; one britzka lamp; newly-invented registered lamps for the interior of carriages, &c.

Mantel and centre vase lights for gas.

Candle lamps, hanging lamps, and hand lanterns.

Toilet furniture, and coal vase, japanned.

["Artistic bronze" is not as may be supposed, either produced by an acid, or by oxidation; it is simply a mixture of colour ground up in turpentine varnish; its depth, or lightness of shade, being regulated by the addition of the blue or yellow colour in use. It is applied by a brush, and the powder bronze is touched upon the projecting parts.—W. C. A.]

333 MORRALL, ABEL, Studley Works, Warwickshire—
Inventor and Manufacturer.

Specimens of needles. Knitting pins. Polished steel, gilt, plated, and steel bodkins. Pattern card of needles in the different states of manufacture.

Specimens of machinery for making needles:—Stamp press, or eyeing machine; filing, edding, and curing machines.

[Needle-making may be thus described:—The steel wire is cut into lengths sufficient to make two needles; these are collected into bundles, and straightened by a peculiar process; the grinder takes a number of these pieces in his hand, and causing them to rotate on a grindstone, points them; he next reverses the ends and effects the same result; they are then cut in two, flattened on the end, and eye-punched either by children or machinery; the roughness is removed, the eye smoothed by filing. They are then tempered in quantities, and polished by being gathered together and made to traverse a horizontal hearth or table, some abrasive substance lubricated with oil being introduced amongst them: scouring, winnowing, and sorting then follow.—W. C. A.]

334 HORSFALL, JAMES, Oxford Street, Birmingham—
Manufacturer and Proprietor.

Highly finished steel wire, for pianofortes and other musical instruments.

Annealed wire, used as an under covering of the "new patent brass strings," for pianofortes.

Plated, japanned, and self-coloured hitch, bridge, and other pins.

Single, double, and treble spun bass strings, for pianofortes.

Hand and mill-drawn steel wire, for the manufacture of needles, fish-hooks, &c.

[The term self-coloured indicates the colour assumed by steel when brought to certain heats, either a straw or blue colour. Hitch pins are what the strings are hitched or hung upon; bridge pins are those placed on the wooden bridge, from which the strings commence vibrating; globe, ball, and cone key pins are pins with variously-shaped heads, going through the centre and front of the key, to keep them in their places. Wrist pins are the pins on which the strings are wound in tuning.—H. E. D.]

335 GOODMAN, GEORGE, Caroline Street, Birmingham—
Manufacturer.

Patent elastic fine-pointed pins, black, purple, and dress.

Specimens of the various sizes of brass pins, and of needles.


336 EDELSTEN & WILLIAMS, New Hall Works, Birmingham—Manufacturers.

Pins: the heads and shafts being formed of one solid piece of metal, in order to render the head immoveable and smooth in use; made by improved machinery.

Model dies to show the formation of the head.

Elastic hair-pins.

Specimens of iron wire in various sizes.

[In pin-making the wire is brass (a compound of copper and zinc): it is reduced by the ordinary process of wire-drawing to the requisite thickness; in this process it is necessarily curved. To remove this it is re-wound, and pulled through between a number of pins arranged at the draw, or straightening bench; it is then cut into convenient lengths for removal, and finally reduced to just such a length as will make two pins. The pointing is done upon steel mills (revolving wheels), the circumference of which is cut with teeth, the one fine, the other coarse. Thirty or forty lengths are picked up at once, and, as in needle-making, the cast of hand given by the workman makes them revolve, and the whole are pointed at once; the same operation is performed with the other end. The process of heading is next effected as follows: a number of the pointed wires, now cut in two, are placed in the feeder of the machine; one drops in, is firmly seized, and, by means of a pair of dies, a portion of the metal is forced up into a small bulb, thus, ; by a beautifully simple and automatic arrangement, it is passed into another, when a small horizontal hammer gives it a sharp tap, which completes the head. The white colour is produced by boiling in a solution of cream of tartar and tin. They are then dried, and passed into the hands of the wrappers-up. The preparation or marking of the paper is peculiar, and is done by means of a moulded piece of wood, the moulds corresponding to those portions which represent the small folds of paper through which the pins are passed, and thereby held. The pins are then taken to the paperers, who are each seated in front of a

bench, to which is attached a horizontally-hinged piece of iron, the edge of which is notched with a corresponding number of marks to the number of pins to be stuck; the small catch which holds together the two parts of the iron is released, the paper introduced, and a pin inserted at every mark: the paper is then released, and the task of examination follows, which is the work of a moment. The paper of pins is held so that the light strikes upon it; those defective are immediately detected by the shade, are taken out, and others substituted in their stead. An ancient edict of Henry VIII. held that "no one should sell any pins but such as were double-headed, or the heads soldered fast on."—W. C. A.]

337 WAREFIELD, J. T., *Lichfield Street, Birmingham—*
Manufacturer.

Various specimens of wire, wire gauze, and wire goods.

338 MYERS & SON, *Newhall Street, Birmingham—*
Manufacturers.

Specimens of steel pens, and improved steel pen and quill penholders, in gold, silver, and other metals.

339 MITCHELL, JOHN, *48 New Hall Street, Birmingham—*
Manufacturer and Patentee.

Patent self-adapting pens and holder, and steel-pens in numerous varieties.

340 MESSINGERS & SONS, *Broad Street, Birmingham—*
Manufacturers.

Domestic groups of the Queen and the Prince of Wales, in or-molu and bronze.—Modelled by John Bell.
Equestrian statuette of the Duke of Wellington, in bronze.

Portion of a chandelier in bronze, as designed by Mr. Grmer, for the Pavilion in Buckingham Palace gardens.
Ornamental design in or-molu, as a balustrade for a staircase. Capital, in or-molu, taken from the temple of Jupiter Stator, at Rome.

Ornamental bracket, for gas, in or-molu. Candelabra, for gas, in or-molu and bronze. Ornamental scroll and support, in iron, bronzed.

Antique tripod and candelabrum, for gas, in iron; antique eagle candelabrum, for gas, in or-molu; tripod candelabrum, in iron, for gas, bronzed.

Candelabrum, in the style of Louis Quatorze, six-lights, for candles, in or-molu.

Gothic candlestick, in or-molu. Gothic vase, in bronze.

Ornamental group, for a letter balance.

Antique Roman vases, in bronze.

Groups, consisting of bull, cow, and calf, forming an inkstand. Group of goats, forming an inkstand.

Cupid's compasses, a watch and thermometer stand, registered inkstand.—Groups of fighting horses. Cups, "Match in the dark." Rustic scene. Antique caskets. Sent vases. Ornamental match-holder, "Gipsy figures." Candlestick. Climbing boy. Letter-balance. Justice inkstand. Antique stag. Registered ornamental match-holder. All in or-molu and bronze. Various specimens in bronze.

Registered station signal, and tail-lamps. Hand signal lamps, in brass, exhibiting three colours. Double and single gauge, and porters' ticket-lamps. Registered roof-lamp, for carriages. Lamp on the old principle. Side and double wide signal lamp. All for railway purposes. Carriage lamps, plain silver mounted. Variety of patterns of general gas fittings, engine cocks, &c.

Bronze varies in its composition according to the taste of the artist as to the depth of colour or its hardness; a very excellent bronze is formed by the addition of 2 oz. of tin to 16 oz. of copper.

The casting of a bronze statue may thus be described: the core is made up of brick-work and clay until a rude representation of the intended work is made; upon this the sculptor models, in wax, of the thickness intended for the metal, all the details, such as the features, drapery, &c.; when this is completed, it is coated with loam of very thin consistency, then follow repeated solid coatings of clay, &c., until a shell of sufficient strength to bear the pressure of the melted metal is formed; the whole is then bound together, heat is applied, the wax is melted out, and a space thereby left for the introduction of the metal; suitable runners are made, and vents to allow the free escape of air. The metal is melted in reverberating furnaces, and, when in a proper condition, the plug is withdrawn, and the mould filled. After being allowed to remain until cool, it is opened, the roughness cleansed off, and the statue is completed. The peculiar tinge of the bronze is acquired by exposure to the air.

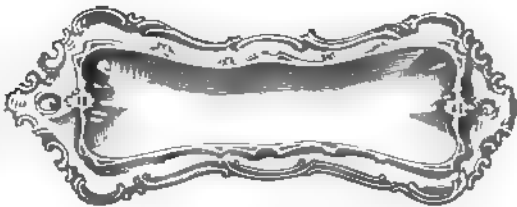
A bronze of nearly the same tinge is given to brass by immersion in a mixture of spirits of salt and arsenic; the metal is to be heated previous to this; the article is thereafter brushed with black lead, and, after being again heated, is coated with a lacquer, composed of lac and spirits of wine, with a little yellow colouring matter; the shade of antiquity is thus imparted in a few minutes.

The establishment of the exhibitors is one of the oldest in the trade in Birmingham; it has been in existence upwards of 50 years; it was one of the earliest to recognise the importance of the union of art with manufactures. For this, the skill of Flaxman and Chantrey was called into requisition; artists, celebrated for their skill in architectural enrichment, were also employed in the modelling of balustrades, candelabrum, tripods, &c.—W. C. A.]

341 STURGES, RICHARD FORD, *46 Broad Street, Birmingham—* Manufacturer and Patentee.

Electro-plated articles on hard white metal. Urns, lamps, candlesticks, stands, trays, frames, tea and coffee pots, pneumatic coffee filter, jugs, spoons, &c. These articles are made by a process, without seams or soldering, so as to diminish labour and cost; particularly that of embossing and chasing.

The articles are cast in metal moulds, in a heated state; a stream of water is made to play upon the moulds, when filled with hot metal, which causes the mould to contract, and thus produce a greater degree of sharpness in the fine parts of the casting; the metal used expands in cooling.



Sturges' Electro-plated Snuffer Tray.



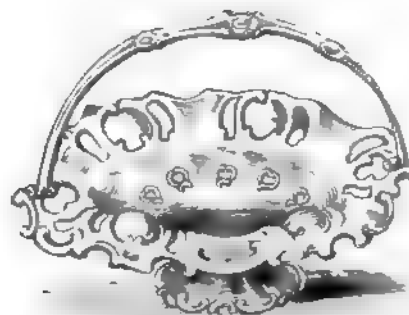
Sturges' Electro-plated Decanter Stand.



Sturges' Electro-plated Tea Urn.



Sturges' Electro-plated Tea Kettle and Stand.



Sturges' Electro-plated Cake Basket.



Sturges' Electro-plated Candlestick.

342 PRIME, THOS., & SON, North Wood Street, Birm
—Designers and Manufacturers.

Specimens of magneto-plate salver. Liquor from grotesque handle, and various magneto-plated article household use.

Magneto-plate dessert knives and forks, with handles, and spoons of new and various patterns.

343 SALT & LLOYD, 17 Edmund Street, Birmingham
Designers and Manufacturers.

Stands for candle, oil, and camphine lamps. Im camphine lamp. Candelabra. Gaseliers. Specin cast brass from Bankart's patent copper; and of Ex patent camphine.

345 EDWARDS, E., Birmingham—Manufacturer.

Various glass inkstands, filled with black, blue, a ink. Junction inkstand, containing black and red one vessel. Safety inkstand, for use on ship-board pical inkstand, with self-closing lid, to prevent evap and exclude insects.

Bronzed inkstands of cast iron. Cast-iron ink "camel reposing," and early Gothic designs.

Glass screws, showing the method of manufac twelve at once by pressure.

[The following note, on the Birmingham produ may be acceptable in this place.

A large number of the articles most commonly factured at Birmingham are not produced in ex factories in which large capitals must be employ

the erection of machinery. Almost all the small wares of the district are made by workmen, who undertake, each one in his particular line, to execute orders received by the merchants and agents settled in the town. The profitable performance of their contracts, however, calls for the employment of a cheaper kind of power than is at the command of men who, like these workmen, have little or no capital; and this course of business has opened a channel for the employment of money in the town, in a manner which is found to be profitable to those who engage in it, and advantageous to the small manufacturer. The plan alluded to is this: a building, containing a great number of rooms of various sizes, is furnished with a steam-engine, working shafts from which are placed in each apartment, or workshop, which is likewise furnished with a lathe, benches, and such other conveniences as are suited to the various branches of manufacture for which the rooms are likely to be needed. When a workman has received an order for the supply of such a quantity of goods as will occupy him a week, or a month, or any other given time, for their completion, he hires one or more of these rooms, of sizes and with conveniences suited to his particular wants, stipulating for the use of a certain amount of steam-power. He thus realizes all the advantage that would accompany the possession of a steam-engine; and as the buildings thus fitted up are numerous, competition on the part of their owners has brought down the charge for the accommodation they offer to the lowest figure that will ensure to them the ordinary rate of profit on the capital employed.

At the same time as this peculiarity exists in this great metal mart, it must be understood that there are some most extensive establishments from which many of the largest contributions to the Exhibition have been received, that contain within their own premises all the elements of production.

346 **LOWE, JOHN & HENRY, Clarence Works, Birmingham**—Manufacturers.

Carriage-lamps, harness mountings, saddlers' ironmongery, &c. Adjusting-iron for dash-lamps, suitable for sweeps of carriage dash-boards. Collinge's patent axle. Clarence carriage-step. Carriage-roller, bolt, and tread. Drag-shoe. Plain and forked turned swells. Fulcrum for gig-shafts. Dog-cart screw, and side iron. Head-work, &c. Hunting, hackney, and ladies' bridles, breast-plates, and steel bits. Snaffles, pelhams, and stirrups. Gig and carriage bits, spurs, &c.

[The manufacture of saddlers' ironmongery is principally located at Birmingham, and in the neighbouring towns of Wolverhampton, Walsall, &c. Its object is the production of bits, spurs, stirrups, curb-chains, &c. These are formed out of iron and steel, by the ordinary process of hammering; and are finished by japanning, tinning, burnishing, or plating with brass or silver. Some produced for the South American market, are of very fantastic shapes, and richly gilt; they differ from those for home use in their massive appearance, the sides of the bits being carved into various designs, and the rowsels of the spurs are made enormously large. When bits are to be plated with metal, they are tinned, and a piece of metal of sufficient thickness is wrapped or bent round it by pressure, this is aided by pressing down upon them with burnishers, &c. When the covering has been made to adhere very closely, the whole is heated, tin solder is applied, and the two become united; the final polish is given by the friction of buff leather and powdered burnt rotten-stone.—W. C. A.]

347 **WOOLDRIDGE, JOSIAH, 38 St. Paul's Square, Birmingham**—Manufacturer.

Or-molu door lock and bell lever, designed by T. C. Hine, architect, Nottingham; modelled by Joseph Jennings, James Street, Birmingham.

Brass bell levers, door handles, hat and coat hooks, parts glass and china.

Brass window stay, self-acting stay; door hinges, and book clasp and hinge, by Joseph Jennings.

Door latch, tassel hooks, and casement catch.

Brass flush and socket door bolts, window blind pulleys, sash fasteners and screws, table fasteners, bell slides and cranks.

Brass hooks, hinges, handles, rings, and castors of various patterns.

Brass deck light and ventilator, stove ventilators, hammock hooks, door stay, pin and nut, pin and chain, bolt, toy cannon.

[The or-molu of the brass-founder, popularly known as an imitation of red gold, is extensively used by the French workers in metals. It is generally found in combination with grate and stove work. It is composed of a greater proportion of copper and less zinc than ordinary brass, is cleaned readily by means of acid, and is burnished with facility. To give this material the rich appearance, it is not unfrequently brightened up after "dipping" (that is, cleaning in acid), by means of a scratch brush (a brush made of fine brass wire), the action of which helps to produce a very brilliant gold-like surface. It is protected from tarnish by the application of lacquer.—W. C. A.]

348 **HOLDEN, HOWARD ASHTON, 96 Suffolk Street, Birmingham**—Manufacturer.

Plain and chased door-handles, carriage-door hinges, mouldings and door-beading, staples, escutcheons, harness-buckles, mountings and ornaments, railway-handles, carriage-beading, hinges and furnishings.

Chariot lamps, railway buffer, and tail-end lamps. Hand signal-lamp, with registered improvements. Side signal lamps.

[Door-handles, whether for ordinary carriages or for railway purposes, hinges, buckles, &c., are first cast, and the ornamental parts finished by being chased. Some, of a more ornamental kind, are produced by a union of stamped and cast work, the former being attached by solder to a foundation of cast brass or iron. Beading is formed out of sheet metal, and is drawn through a steel hole in the same manner as a tube, but with a plug introduced, for the purpose of keeping it in shape; the sprigs by which it is attached are inserted at the time when the solder is applied to fill up the back. The solid moulding is formed by rollers, and is made out of solid ductile brass, the circumference of the rolls being grooved to a corresponding form to the shape of the moulding required.—W. C. A.]

349 **BLEWS, WILLIAM, & SONS, Bartholomew Street, Birmingham; and 55 Bartholomew Close, London**—Manufacturers.

Brass candle and ship lamps, the glass pillars manufactured by Messrs. Richardson, of Stourbridge.

Candlesticks—brass, and imperial metal.

Imperial standard peck and gallon measures, made from the original patterns as supplied by the late Mr. Bate for the Exchequer, London.

Weights—brass, solid, &c.; and circular sovereign weights from 100 sovereigns down to a half-sovereign.

Large bell, in frame, for steam-vessels; and small, in brass frame.

Scuttles—brass, and ship, fitted with Lockhead's patent perforated glasses.

[Bell and candlestick founding and making are understood, in the Birmingham trade, to go together. The operation of casting may be similar, but the composition of the two metals is exceedingly different, the one being hard, the other pliable and ductile. Bell-metal, though composed of two of the softest of metals, viz., copper and tin, when united in the proportion of four to one, forms a mixture easily broken and capable of producing sound. Small bells are cast in sand, those of a large size are produced in loam.

Candlesticks are cast in sand, and made hollow by the introduction into the mould of what is called "a core," viz., a piece of sand corresponding in size to the hollow of the pillar. Upon his skill in making this, in such a manner as to produce uniform thickness of metal throughout, depends the success of the workman; the metal must also be of a proper temperature, or the casting is rendered useless by the presence of flaws. Candlesticks are finished by being turned, and polished by friction when in a state of motion in the lathe; the bottoms, when round, are also turned; when square, they are filed and polished. The composition of the metal, in this case, is copper and zinc, in the proportion of 16 ounces of the former to 8 ounces of the latter.

Lockhead's patent glass is produced by a roller having, on its circumference, projections corresponding to the apertures intended, which is made to traverse the surface of the glass; when in a molten state, an indentation is made for every projection, and the whole is finished by grinding, which removes the extra glass and relieves the apertures. It is useful for purposes of ventilation.—W. C. A.]

350 DUGARD, WILLIAM & HENRY, Upper Priory, Birmingham—Inventors and Manufacturers.

Carriage-lamps, full, plain, and fancy, silver and gilt-mounted. Silver and gilt-mounted winker.

Registered collar, full silver-mounted: it requires no hames, and can be put on over the neck instead of the head. Collar with patent leather silver ornaments, and coat of arms.

New pattern hames, plated on German silver, and cased on iron.

Improved pattern of hair horse-saddles, silver-mounted: and with fronts and rosettes. Silver-mounted saddle-top.

Improved shaft-tugs, open and closed.

Registered, brass-mounted, thiller cart-horse collar, "miniature."

351 HETHERINGTON, T., & Co., 28 Cannon Street, Birmingham—Manufacturers.

Circular chariot lamp, full silver mounted, with engraved glasses, and chased edges.

Chariot five glass lamp, viz., two oval and three bent glasses, gilt, full silver mounted.

The Albert chariot lamp, full silver mounted, with chased edges, and three stained and engraved glasses.

The royal crown chariot lamp, full silver mounted and chased, with engraved glasses.

The Prince of Wales lamp, full silver mounted, with chased edges, and engraved glasses.

The chariot lamp of Industry, full silver mounted.

The chariot three-glass lamp, full silver mounted, with engraved front glass, side glasses stained, gilt and enamelled.

352 EVERITT, A., & SON, Birmingham—Manufacturers.

Brass tubes, for locomotive and marine boilers; copper and brass tubes, for gas, steam, &c.

Specimens, showing the process of manufacture of rolled metals, and of brass and copper wire.

[Rolled metal (brass) is produced by melting the metal to be rolled in clay crucibles; when sufficiently melted, mixed, and fluxed, it is poured into iron ingots, &c., which have been previously smeared with oil. After this, the "strip" is passed into the hands of the roller, who proceeds to what is technically called "break it down;" then follows the process of reduction. The huge iron rollers used in the operation are fitted with screws or appliances for bringing their surfaces in closer contact. The metal is annealed in muffles, scaled, and pickled (cleaned and washed in an acid solution), and in certain cases where brightness is necessary, it is finished by being passed through bright-rolls.—W. C. A.]

353 BOLTON, THOMAS, Broad Street Metal Works, Birmingham—Manufacturer.

Sheet brass, German silver and copper. Specimens of the process of manufacture of brass wire, round and shaped brass and copper wires, and of tubing. Brass and copper tubing; locomotive and mandril drawn tubing. Brass solder.

[The metal of which brass wire is formed is cast in strips and rolled to the required thickness; it is then "slit" into square rods of metal by the operation of cylindrical rollers; the larger sizes of wire have corners taken off by being passed through a pair of rolls; the smaller sizes are at once passed through steel draw-plates.

Brass or other tubes are formed from rolled metal, which is cut to the required breadth by means of revolving discs; in the large sizes of tubes, the metal is partially curved in its length by means of a pair of rolls; when in this condition, it is passed through a steel hole or a die, a plug being held in such a position as allows the metal to pass between it and the interior of the hole. Oil is used to lubricate the metal; the motion is communicated by power, the drawing apparatus being a pair of huge nippers, which holds the brass, and is attached to a chain which revolves around a windlass or cylinder. The tube, in its unsoldered state, is annealed, bound around at intervals of a few inches with iron wire, and solder and borax applied along the seam. The operation of soldering is completed by passing the tube through an air stove heated with "coke" or "breezes," which melts the solder and unites the two edges of the metal, and forms a perfect tube; it is then immersed in a solution of sulphuric acid to remove the scaly deposit on its surface, the wire and extra solder having been previously removed; it is then drawn through a "finishing hole plate," when the tube is completed.

Mandril drawn tubes, as the name indicates, are drawn upon a very accurately turned steel mandril; by this means, the internal diameter is rendered smooth; the tube formed by this process is well fitted for telescopes, syringes, small pump-cylinders, &c.

Brass solder is composed of almost equal quantities of copper and zinc; its properties should be that of melting at such a temperature as will allow the article to be soldered to be sufficiently heated, but yet some degrees from melting point. Solder is always used in connection with borax, the cleansing properties of which appears to facilitate the fusion of the metal.—W. C. A.]

354 SOUTTER, WILLIAM, 10 Market Street, Birmingham—Manufacturer.

Copper-bronzed tea urns, and swing kettles. Bright copper-fluted coal vase, and round or oval kettles.

355 HILL, JOSEPH, Broad Street, Birmingham—Manufacturer.

Specimens of stamped ornaments, used in the manufacture of lamps, chandeliers, &c., made from sheet or rolled metal.

The metal in its raw state, copper and spelter; mixed and prepared for rolling; rolled.

Rough shells finished from the stamp; and from the soldering.

Shells cleaned from the scale, by means of aquafortis, ready for burnishing.

Six-light body and arms, cleaned, burnished, and lacquered.

Lamps in the finished state.

[In these specimens, the oxidated or scaly appearance of the metal, when undergoing the process of manufacture, will readily be detected; the parts at which the soldering has been also made, are shown by the brightness of the seam. The glassy appearance at this part, when uncleaned, arises from the use of the borax, which is employed to protect that portion of the brass to be soldered, from becoming dirty; it also acts as a flux, facilitating the running of the solder. Immersion in weak nitric acid effectually removes the scales, after which various strengths of the same acid are used until the articles are entirely cleaned; they are finally dried out in box saw-dust, and burnished.—W. C. A.]

356 WHITFIELD, SAMUEL, Oxford Street, Birmingham—Manufacturer.

Varieties of window cornices in stamped brass-foundry, with crimson and blue velvet, wainscot and knotted oak, rosewood, and white enamel ground introduced.

Impregnable wrought-iron fire-proof safe, of thick plates dovetailed and riveted together.

Wrought-iron fire-proof book-case. Wrought-iron fire-proof deed-box.

Wrought-iron treasure chest for exportation, which can be taken to pieces for the convenience of land carriage.

Wrought-iron fire-proof cabinet, japanned, and suited to the library, the dining-room, or the office. Fitted with Cotterill's patent climax detector locks.

The above are all lined and filled with a non-conducting substance, which effectually prevents the contents of the box or chest being injured by the heat, even should the outer metal be exposed to a very high temperature.

357 LLOYD, GEORGE B., Berkeley Street Tube Works, Birmingham—Manufacturer.

Specimens of lap-welded iron tubes, as used in marine, locomotive, and other steam boilers; the same tubes with fittings for conveying gas and water; and for hydraulic presses. These tubes are produced by improved machinery which ensures regularity and accuracy of finish, and they can be made in any lengths not exceeding 15 feet.

358 THOMAS, R., Icknield Works, Birmingham—Manufacturer.

Brazil axes. American wedge axes, and hand hatchet. Shingling hatchets, assorted patterns. Cooper's adze and axe. Round and square eye adze. Mahogany squaring axe. English carpenter's axe.

Eyed shell and screw auger. Double plane iron. Socket chisel. Trowel. Gun and hand harpoons.

Improved grass shears; and a variety of garden tools, to screw into one handle.

[The articles here exhibited illustrate the heavy steel "toy" trade of Birmingham. The manufacture of the axe used by the backwoodsman, of the hoe used in the agriculture of the tropics, the pick used by the Caffirs of the Cape, and the harpoon of the whale-fisher, gives em-

ployment to many artisans in its vicinity. In order to convey a general idea of the process by which these articles are "got up," the manufacture of an ordinary axe may be selected. A piece of iron is taken, and after being heated, is doubled over a piece of steel corresponding in form to the future eye which is to hold the shank; it is not then welded together. A small piece of steel which is intended to form the future cutting edge, is heated along with the iron back to a welding heat, and is passed under a tilt-hammer (that is, a large hammer driven by steam or water), which speedily flattens it out: it is then exposed to another heat, and the eye is completed with the small hammer. The superfluous iron or steel is removed at the edge by a pair of large scissors. The process of hardening and tempering follow; the grinding is performed on stones, which cuts away the iron and discloses the steel edge. The "glazing" on emery "bobs" or wheels succeeds, and the polishing is effected by means of oil and emery on a similar tool. Considerable improvement in appearance is imparted by the use of a blue varnish which is applied to the axe, and drying in a small stove. "Toy" is a technical term applied to an anvil, a hammer, and various incongruous objects which are comprised under the "heavy steel trade," readily understood by the initiated.—W. C. A.]

359 TAYLOR, WILLIAM, 13 Sheepcote Street, Birmingham—Inventor and Manufacturer.

Original designs for nut-crackers, sugar-tongs, door knockers, and improved inside shutter bars.

360 WORDSWORTH, JOHN, Birmingham—Designer and Manufacturer.

Model of an economical kitchen range, intended for a close or open fire, and for curing a smoky chimney. By closing the oven dampers and opening the folding doors at the back of the range, it assumes the appearance of a common oven grate with open fire.

360A KENRICK, ARCHIBALD, & SONS, West Bromwich, Staffordshire—Manufacturers.

Model of an enamelled tank or cistern, composed of cast-iron plates, screwed together with gutta percha joint. Model of enamelled water or gas-pipes, and water-closet pan, with trap-pipe; dog trough, poultry trough, and spittoon.

Cast-iron enamelled culinary vessels. Registered spittoon.

Casting of saucepan broken to show the thickness; turned casting previous to being tinned or enamelled.

Cast-iron butts and patent pivot butts with sections showing the construction.

Frame pulleys; axle pulleys; castors; upright castors, side and screw pulleys.

Casting, showing the mode of arranging nails in the mould or flask, by which a great number are produced at one operation.

Specimen of enamelled plate and writing.

[The application of enamel for the protection of water-cisterns, pipes, &c., from oxidation, and for the lining of cooking utensils, is of comparatively recent date. The various materials of which the coating is composed (silice being the principal) are reduced to a fluid state: the article to be coated is dipped in the mass; a portion of the fluid adheres; it is then subjected to the heat of a muffle, and the whole becomes vitrified or reduced into a glassy covering, affording an excellent defence against oxidation, and a substitute for the protection afforded by tinning.—W. C. A.]

361 TONKS, W., & SON, Cheapside, Birmingham—Manufacturers.

Brass foundry, &c., consisting of butt, stop, and other variety of hinges.

Ventilators, bolts, bell-cranks, pulleys, castors, chair-arms, picture, French pulley, espagnolette and stair rods, desk rails, and window fittings. Exhibited for quality of workmanship and cheapness of production.

362 KIMBERLEY, JAMES, 56 & 57 Inge Street, Birmingham—Factor and Designer.

Manufactured articles, in stamped brass foundry, of a useful and ornamental character. These consist of curtain bands, cornice pole ends, window cornices, cornice pole brackets, letter clips, miniature frames, letter racks, medallions, brooches, door furniture, finger door plates, bell pulls, &c. In these articles portraits and emblematic designs, illustrative of Shakspeare and his works, are introduced.

363 MARRIAN, JAMES PRATT, Slaney Street, Birmingham—Manufacturer.

Specimens of brass scroll ornament; the centre finished in "artistic bronze;" the outer compartments in Florentine bronze.

Specimens of naval brass foundry, consisting of ship-scuttles, &c. The grooves for the doors are fitted in some cases with cork, and in others with vulcanized India-rubber, to prevent the ingress of water.

Glass deck lights, mounted in brass, with brass ventilators.

Gun-hole screw valves. Brass hinges. Ordnance metal pulleys, with anti-friction rollers. Bracket candle lamp. Registered oil and hand lamps, for bracket or table.

364 BRISLAND, H., Howard Street, Birmingham—Manufacturer.

Specimens of mother-of-pearl and black pearl studs and buttons, of every description, from the smallest to the largest size known, either for use or ornament. Ladies' mother-of-pearl dress buttons, slides, and ornaments for dresses, &c.

[Pearl-button making is thus practised: The blanks are cut out of the shell by means of a small revolving steel tube, the edge of which is toothed as a saw; after which they are flattened, or reduced in thickness, by splitting, which is aided by the laminar structure of the shell. At this stage, being held in a spring chuck, they are finished on both sides by means of a small tool: the drilling is effected by the revolution of a sharp steel instrument, which acts with great rapidity. Ornamental cuttings are produced by means of small revolving cutters, and the final brilliant polish is given by the friction of rotten-stone and soft-soap, upon a revolving bench.—W. C. A.]

365 ATKIN & SON, 115, 116, & 117 Barford Street, Birmingham—Manufacturers.

Specimens of circular saws, uniform in thickness, temper, and teeth.

Case of carpenters' and joiners' tools, containing specimens of hand-saws, back-saws, planes, squares, bevils, spokeshaves, gauges, saw-pads, turnscrows, brad-awls, spirit-levels, saw-sets, braces, bits, augers, gimlets, and edge-tools. Specimens of skates.

[Saws are formed from plates of sheet steel, and are toothed not by hand but by means of a press and tools. Circular saws have the advantage of being divided in their teeth very accurately by means of a division plate; this prevents irregularity of size, and imparts smoothness and uniformity of action. The larger sizes of circular saws are made in segments, and connected together by means

of dovetails. All saws are hardened and tempered in oil; their irregularities are removed by hammering on blocks, and they are equalized by grinding. The several forms of teeth do not, as the casual observer may imagine, depend upon taste, but are those best fitted for cutting through the particular section, quality, or hardness of the material to be cut. The "set" of the saw consists in inclining the teeth at the particular angle known to be the best to facilitate the exit of the saw-dust, and thereby allow the saw to operate more freely. Iron bars, shafts, &c., are cut to length by a steel circular saw, in its soft state, the iron to be cut being presented to the saw red hot; the saw rotates at a prodigious rate, and is kept in cutting condition, or cool, by its lower edge being immersed in water. A bar, two inches in diameter, is cut through in a few seconds.—W. C. A.]

366 WRIGHT, PETER, Constitution Hill, Dudley—Manufacturer and Patentee.

Vice, with patent solid box, the worm of which is cut out of solid iron and case-hardened, thereby rendering it as durable as steel. Smiths' anvil.

367 ASTON, JOHN, 20 Dale End, Birmingham—Manufacturer.

Brushes principally for the stable department, including horse, water, hoof, spoke, dandy, shoe, cloth, hair, carriage, plate, dish, boot-top, harness, bit, dog, hat, &c. Some of the above tastefully worked in various devices with dyed bristles. Horse toppings and throat ornaments. A set of military brushes complete, with horse, shoe, cloth, hair, and button brushes.

367A ALCOCK, SAMUEL, Redditch, near Worcester—Manufacturer.

Artificial baits and flies. Superfine Kirby-bent and other hooks for angling. Silk and hair fly-lines and spring snaps. Plait silk and silk-twist lines. Plait hemp and cord lines. Fancy porcupine, cork, and quill floats. Gimp, swivels, and artificial minnows. Furniture lines, and a variety of other tackle.

New ring fish hook, invented by the exhibitor, which enables an angler to fasten a fresh hook with the greatest ease, being perfectly safe, no tying whatever being required.

368 WARDEN, J., jun., Old Church Works, Birmingham—Manufacturer.

Springs, axles, &c.:—Waggon spring; grasshoppers spring. Cart arm; the same with patent linchpin. Scotch axle. Axles, mail patent, long and short bolts. Collinge's patent axle.

Patent waggon arm, with brass oil cap. Patent Scotch axles, with brass oil caps. Engineers' vice. Patent vice, with spherical washers. Vice, with solid brass box. Smiths' anvil. Specimens of faggoted iron.

370 MAPPLEBECK & LOWE, Birmingham—Proprietors.

Cast-iron chimney-piece, brown oxide (new mode of bronzing), with Berlin black ornaments.

Registered new pattern grate, with reverberating fire and ash-pan, fender and fire-irons.

Berlin black chimney-piece, with figure brackets.

Black grate, with bright front and moulding, fender and fire-irons. Black register grate, with fender.

Bright grate, burnished steel and or-molu ornaments, with pierced burnished steel fender.

Bright grate, with or-molu ornaments, new ash-pan and fender, all of new patterns.

Fine polished fire-irons, of various patterns and new designs. Light fancy pokers, and coal-vase tongs.

Brown's improved patent economical cooking apparatus, with automaton roasting jack, steaming apparatus, coffee roaster, &c. Automaton jack, without frame.

combustion being made to pass between two earthen cylinders, so constructed as to traverse a distance of 20 feet, by which nearly the whole of the calorific is abstracted before they enter the chimney.

Hot-air stove, heated by gas; constructed on the same principle.

390 TOZER, THOMAS, 55 Dean Street, Soho—Inventor and Manufacturer.

Ventilating gas stove for halls, shops, &c. It can be erected with an ascending or a descending pipe, and so constructed as to prevent any return draught from extinguishing the gas.

The bachelor's kitchen, a portable cooking apparatus, adapted for small families, pic-nic parties, sportsmen, and others.

Registered calorifère, or hot-water vessel; to be used as a bed-warmer or a foot-warmer in house or carriage.

391 NORMAN, GEORGE, 5 St. Ann's Place, Lincolncourt—Inventor

Improved cooking stove for the use of private families; to stand in a common fireplace, and requiring no fixing.

393 FROST, HENRY, 17 Rathbone Place—Inventor and Manufacturer.

Model kitchen fire-place and cooking apparatus calculated to roast, bake, &c., with one small fire; and applicable to various other purposes.

395 HEWETT, H. BAILEY, 308 High Holborn—Inventor.

Machine for rapidly cooling or warming liquids, and combining the two processes in one vessel. Of domestic importance, in its capability of preserving milk, cream, &c., from turning sour.

396 KENT, JOHN, 8 Elizabeth Street South, Pimlico—Inventor, Designer, and Manufacturer.

Improved vegetable cullender.

New potato steamer.

397 PRICE, VINCENT, 33 Wardour Street, Soho—Inventor, Designer, and Manufacturer.

New patent washing-machine. Suet and herb chopping machine.

Ventilator, consisting of a perforated metal tube, to be placed above the window or door.

Patent pen-cleaner. Letter-copying machine. A fire-shovel with a double bottom. Patent fork-cleaning machine. New patent invented knife cleaner.

Portable stove for heating flat irons, consisting of a cast-iron box, with a sloping front and sides, a grating at the bottom to admit of draught, and an opening at the back to let out the smoke. The irons rest on a bar round the bottom of the stove, and the fuel is put in through a small door at the top.

Newly-invented patent candle-nuffers, consisting of a cylinder in two parts; the front part is fixed, and the back part is drawn back with the fore finger; when this is released the two halves are drawn together by a spring, and the operation is performed.

399 ROPER & SON, 68 Snow Hill—Manufacturers.

Patent japanned plate-warmer.

400 REEKES, JOHN, 50 Harker Street, Chelsea—Inventor.

Portable oven, on a new principle; it can be used in the open air.

401 TYLOR & SON, Warwick Lane—Manufacturers.

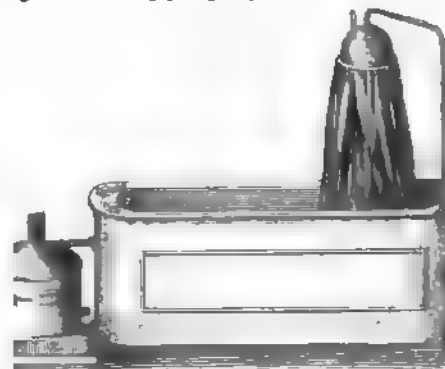
Garden engines and syringes, with improvements in the pumps, &c.

Improved cocks for steam, hot and cold water.

Lift and force pump; with highly finished barrel, mounted on a cast-iron standard.

Copper bath, enamelled to the appearance of white marble, in a mahogany frame, with cocks, for hot, cold, and waste water, and fitted with a copper shower-bath, and pump for the supply of warm or cold showers. This bath with a small stove for heating it, is represented in

the cut. The dotted lines show the form of the into arrangement of the pipes, pump, &c.



Tylor and Son's Enamelled Copper Bath.

An ornamental tea urn of simple and chaste design. This is represented in the adjoining cut. Fig. 1.

A copper coal scuttle of new and simple design. is also shown in the cut Fig. 2.



Fig.



Fig.

Tylor and Son's Novel Tea Urn and Coal Scuttle.

Copper coal scoops, exhibiting the changes in patterns during the last 70 years.

Copper tea-kettles of various patterns, with glass handles and other improvements by the exhibitors.

Set of standard imperial weights and measures.

Bath apparatus, complete, with pipes, cocks, and united in one frame, which requires no fixing.

Series of tea urns, containing specimens of the different improvements from 1780 till the present time.

Series of vases, beaten out of the flat pieces of copper.

L. M. N. O. 18 to 20, & 25 to 27; O. 9, & P. 3 to 20.

by joint or brazing. The change of form which it undergoes in manufacture, is shown by of the vases at different stages.

BREX, GEORGE. 15 Lower Market Street, Woolwich—Manufacturer.

Register stove. Model of thermometer stove.

ILDERTON & SHREWSBURY, Hastings—

Designers and Manufacturers.

stove, with open fire, the iron made from ore and smelted in Sussex.

like is made to pass towards the front, returning at the back, after spreading itself over the top, great additional heat is derived from radiating surface. By a simple contrivance, at the fender, the consumption of fuel is regulated by of air to the bottom of the stove.

LALL, JOHN & WILLIAM, St. Agnes, Cornwall—

Inventors and Manufacturers.

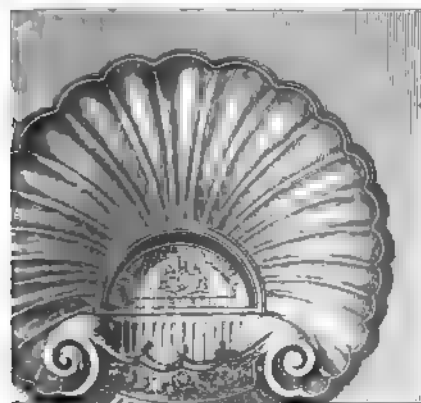
apparatus, designed to save fuel.

L. JAMES, & SON, 85 George Street, Edinburgh—

Inventors and Manufacturers.

radiating and reflecting stove grate, with flue, the back of the concave front, and thus trans large amount of heat into the apartment. The of smoke is effected by causing nearly all the enters the chimney to pass over the fire, and all quantity, absolutely required for combustion through the fire. Command over the com the stove is obtained by regulating the admission of air which passes through the fire.

eried engraving represents this stove grate with front, &c.



Gray & Son's Radiating Stove Grate.

reaction bank safe lock, in which the key is two bits, one of which acts upon the upper disengages the upper lock, while at the same another bit acts upon the under lever and the under lock. The security is still further by the impossibility of opening the lock either.

HAMS & BROWN, L. & Co. Inventors and Manu-

facturers. Agents TROTAL & BROWN, &c. of London.

st cooking stove 3 feet long with a row of or roasting in the oven and for heating the in either side.

d cooking stove with a long radiating fire and outlet, the roasting may be effected by the stove the fire. With provisionally registered.

st or cottage stove suitable for wood or coal, late and oven.

sting apparatus produced by the exhibition of internal flue to the oven, which is compacting, and gives heat to the oven from all

its sides, whereas, on the usual plan, only one side heats the oven. This apparatus can be used as a close stove, and, by means of a winding check, can be contracted so as to suit the smallest effective quantity of fuel. By means of a front ventilator, and a pipe at the back, the peculiar flavour of oven baked meat is removed. The hot plate over the oven is adapted for the purposes of stewing and roasting, being kept so hot by the peculiar construction of the flue. The apparatus can be made to bake, boil, stew, steam, and roast at the same time, and in large quantities, if necessary. It can also be made to act in every respect like an open kitchen-range, and effects a vast saving in fuel.]

407 **KING, S., 1 South Hill, Bath—Inventor.**

Registered ventilating and smoke consuming register stove grate.

Model of the grate, with the exhibitor's octangular wedge bricks, showing one continuous smoke-vent from the fire to top of chimney shaft.

Octangular wedge bricks, for forming circular smoke-flues, water and air drains.

408 **McSHERRY, MICHAEL, 33 Cross Street, Limerick, Ireland—Inventor.**

Tin model of a registered stove, made of metal and box plate iron, for heating conservatories, hothouses, and public or other buildings.

409 **BLAIR, J., Scotland—Inventor.**

Portable couch or bedstead.

410 **REDGATE JOHN, Nottingham—Manufacturer.**

Register stove grates, with registered fire brick backs.

411 **ROBY, PETER 157 Grace St., Liverpool—Inventor.**

Portable cooking stove, for cooking with gas generated from heated spirits. This stove is shown in the cut.

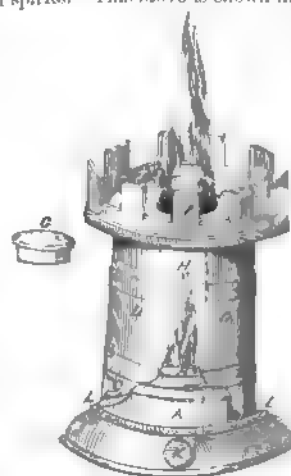


Fig. 1.

A, the fuel tank, and the boiler D. This stop may be used with either oil or spirits.

B, the burner which feeds the boiler D, and is ignited with vaporized gas that rises from the holes at E.

C, the fuel tank.

D, the boiler containing the spirit or vaporization.

E, the flue of the boiler.

F, the holes from which rises the vaporized spirit, which is ignited by the flame from the burner B.

G, the cover to cover the holes when not in use.

H, the chimney.

I, the gallery on which rest the fuel and the frame for

stew pan, kettle, &c. while cooking.

K, The regulation, the turning of which will increase or decrease the heat if pleasure.

L, the screw to fasten the stop down upon the top.

Emigrant's kitchen, connected with the stove, and containing frying-pan, stewpan, kettle, plates, and dishes, &c.

412 TIPPEN, JOHN, *Chichester*—Inventor and Manufacturer.

Model of a new bedstead, constructed so that an invalid can be raised to any required position.

Model of an improved kitchen range, with two boilers and taps, oven, steam closet, and hot plate, swing vane and shifting hooks, smoke-jack with chains, cradle and bird spit, draw fret, fender with slide top, ash grate, &c.

413 WALLACE, JOHN, & SON, *Leith*—Inventors.

Model of a patent safety cooking apparatus for ships, by assistance of which many dishes may be prepared at the same time, and at a small expense for fuel.

Model of improved ventilator for warm climates, constructed to admit air, and prevent the entrance of insects, &c.

414 STOCKER, —, *Manufacturer*.

Specimen of metal castings.

416 MASSEY, W., & Co., *58 Baker Street, and 5 King Street, Portman Square*—Manufacturers.

Stands for flowers, of different sizes, made of brass tubing, by hand.

418 M'KENZIE, ALEXANDER, *38 De Beauvoir Square, Kingsland*—Manufacturer.

Model of condensing engine, scale $\frac{1}{4}$ inch to one foot; exhibiting the following peculiarities:—Placing coffer valves under cylinder; supplying cistern from the bottom by a force-pump; lever for reversing motion, &c.; giving motion to throttle valve.

Instrument for registering motion of all kinds, consisting of four concentric wheels. It may be made susceptible of small vibrations, in conjunction with a clock. It is to register the variations of speed, &c., applicable to paddle-wheels, locomotives, printing presses, gun-carriages, &c.

421 HASLAM, WILLIAM, *St. Helen's, Derby*—Designer and Manufacturer.

Specimen of iron church-door hinges, with branches of scroll-work, after the early English style.

422 BOTT & ALLEN, *Manchester*—Manufacturers.

Fenton's patent anti-friction metal, in ingot; a substitute for brass for the bearings of machinery, &c.

The same in casting for railway carriage axle bearings, unused; and that has been in work upon a railway, having run a considerable distance.

The same metal for machinery bearings; and applied to union joints for plumbers' work; to steam-engine valves; to ship nails and fastenings; to ship blocks, or pulleys, &c.

Dickenson and Falkous's patent equitable gas-meter.

424 PADDON & FORD, *Branclose Mees, Gray's Inn Road*—Manufacturers.

Patent wet gas-meter.

426 BOTTEN, CHARLES, *Cranford Passage, Clerkenwell*—Inventor and Manufacturer.

Patent protector gas-meter, for preventing fire-damp, and persons from drawing off the water, so as to cause an incorrect registration.

430 SPARKS, JOHN, *12 King Street, Tower Hill*—Inventor.

Box for the secure transit of cash on railways.

Hinge for closing lobby doors. Vulcanized rubber is used in place of a steel spring, and it can be adjusted so as to suit any door.

431 GRANT, DONALD, *Luton Place, Greenwich*—Inventor.

Patent gas-light, perfectly ventilated; the conveyance of the heated air may be carried on through wood-work,

with the absence of any danger of ignition, within a distance of one inch from any combustible material.

[If a room, 12 feet square and 12 feet high, with the doors, windows, and fire-place closed, has a gas lamp burning in it, consuming 5 cubic feet of gas per hour, the light will produce sufficient carbonic acid, in rather more than three hours, to be in the proportion of 1 part to 100 of air, and when in such condition the air is decidedly injurious to health. The removal of the products of combustion, therefore, at once into the external air, should always be provided for. The idea of ventilating gas-burners originated with Professor Faraday.—S. C.]

Stove, heated by gas, for baking bread and cooking provisions, by roasting, boiling, or broiling.

Stove that may be heated by either gas or coal. This stove gives out both radiated heat and hot air, kept in constant circulation; a supply of air from the external atmosphere also serves to support and assist combustion, and to prevent the temperature of the apartment becoming too high for the purpose of a healthy respiration.

Small model of improvements in the form and material of fire-flues, calculated to remove danger by the ignition of soot and the waste of heat.

432 HALDANE & RAE, *George Street, Edinburgh*—Designers and Manufacturers.

Gas lustre suspended from entwined branches, which are supported by two rustic pillars; a variety of gas branches being fixed on the pillars. Below, there is a wash-hand basin, and models of patent water-closets; also registered spiral taps for different purposes; vases for gas, suitable for mantelpieces, staircases, &c.

433 RICKETS, CHARLES, *5 Agar Street, Strand*—Inventor and Manufacturer.

Gas-cooking range, with roaster, oven, stewing-stove, &c. Apparatus for stewing, by means of jets of coal-gas mixed with atmospheric air; for heating laundry irons, hatters' or tailors' irons, and bookbinders' tools.

Calorific gas stove, for warming halls, shops, churches, conservatories, &c.

Apparatus for broiling chops, steaks, &c., with jets of gas; for toasting bread, boiling water, &c., with gas and air; for heating chemists' spatula, macerating, and for sand-baths; and lighting stove fires by means of gas.

434 COCHRANE, J., *Greenside Lane, Edinburgh*—Manufacturer.

Gas-meter, 10 inches diameter.

435 SIERE, AUGUSTUS, *Denmark Street, Soho*.

Patent rotatory universal syringe, to keep up a continual flow of water.

436 RYAN, J., *13 Stafford Street, Dublin*—Inventor and Manufacturer.

Transparent gas-meter.

437 ROPER, JOSEPH, *Wigan, Lancashire*—Manufacturer.

Transparent gas-meter, which registers the consumption of gas to the hundredth part of a foot.

438 BIDDELL, GEORGE ARTHUR, *22 Montpelier Square, Knightsbridge*—Inventor and Patentee.

Patent self-regulating gas-burners, made for horizontal and vertical attachments. Complete section showing their construction. These burners regulate themselves to all variations of pressure, preventing the flame rising above or falling below any height to which they may be adjusted.

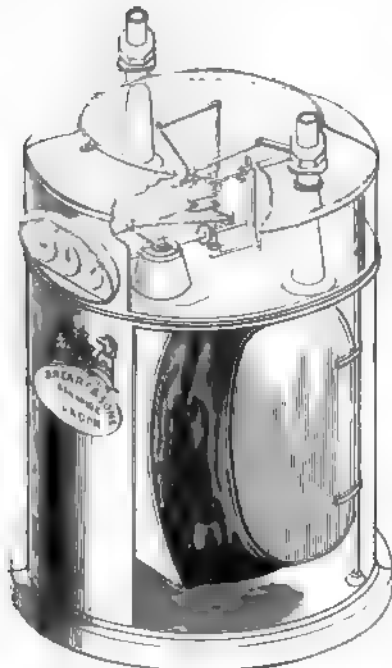
[When the valve at the gas-works regulating the supply to the initial main is partially closed, the flames of all the burners fall, and when a number of burners are turned

off, those which still remain lighted rise, unless in each case the stop-cocks be altered, or some contrivance used which will ensure a regular height of the flame by self-action. Probably the best means of effecting this is by using a "governor" on the service between the main and the burners.—S. C.]

438A SHEARS & SONS, 27 Bankside—Inventors and Manufacturers.

Patent dry gas-meter, for ascertaining the quantity of gas consumed for illumination or other purposes. The novelty of this meter consists in the application of vertical diaphragms, vibrating on vertical shafts; the use of conical seat semi-rotating valve, and the application of a peculiar shaped screw and worm wheel, by the use of which gas may be passed either way through the meter, without affecting the registration of the index.

The adjoining cut gives a representation of this meter, showing the interior of the apparatus.



Shears & Son's Patent Dry Gas-meter.

The water-meter, invented by Mr. Clegg in 1815, depended for its accuracy upon the water line remaining constantly at the same level, which evaporation prevented. Dry meters are intended to obviate this defect, and consist of moving diaphragms, worked by the gas passing from one side to the other, each vibration recording on a dial the quantity of gas that has passed.

The peculiarities of each kind of dry meter, consist chiefly in the different arrangements, and the number of the diaphragms and valves.—S. C.]

439 LOCKEY & STEPHENSON, Glasgow—Designers and Manufacturers.
Six light chandelier for gas.

440 HARVEY, GEORGE, Great Yarmouth—Inventor
Cooking-stove, or ship's fire-hearth, of wrought iron

441 EDGE, THOMAS, Great Peter Street, Westminster—Manufacturer.

Patent wet gas-meter, with improved lever-valve and float, index, and waste water box. Separate index and lever-valve, with float to show their action more clearly.

Patent dry gas-meter, having upright double-cranked shaft, and only three measuring chambers.

442 YOUNG, W., 18 & 33 Queen Street, Cheapside—Inventor and Manufacturer.

Vesta lamps, on tripod pedestal; and on pillar. Vesta reading and night lamps. Vesta lantern. These lamps are constructed to burn rectified turpentine.

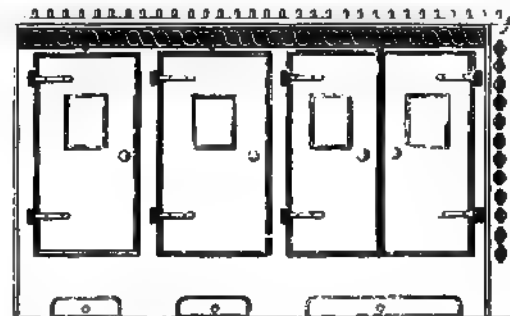
Spirit cases, with air-tight stopper.

Vesta gas-burners, constructed to burn with internal deflectors.

443 STRODE, WILLIAM, 16 St. Martin's Le Grand—Manufacturer.

Gas cooking-range for boiling, baking, roasting, and broiling, on the plan of Alfred King, Esq., C.E., of Liverpool.

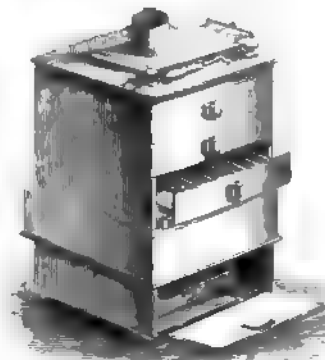
This cooking-range is shown in the adjoining cut, by a front elevation, with its closets, ventilators, &c.



Strode's Gas Cooking Range.

Gas torch attached to the gas pipe, with flexible tube for lighting up the burners.

Gas broiler for chops, steaks, &c. This broiler is shown in the following cut, with its shelves, dampers, &c.



Strode's Gas Broiler.

Gas stove, being a hot air stove heated by gas. Bronze candelabra for gas, designed by P. C. Hardwick, Esq. Holly branch made of sheet copper—a model for part of a candle branch or girandole.

Riddle's self-igniting gas-burner, by which the hydrogen light is adapted to the purpose of lighting common coal gas. Railway signal lamp, with parabolic reflector.

Lowe's patent naphthalizer for charging gas with the vapour of naphtha.

[Coal-gas, charged with the vapour of naphtha, has its illuminating power nearly doubled, in consequence of the increased quantity of carbonaceous matter which it acquires in its passage. The employment of coal-gas for cooking will soon be universal. The ease and certainty with which the heat from the flame can be regulated, it

cleanliness, and its economy, are advantages of too great importance to be overlooked. At the proper moment for the cooking, the gas fire is lighted, and the required degree of heat obtained at once, and maintained uniformly: when the cooking is done, the fire is turned out instantly. The number of fires or gas flames can also be increased or diminished at pleasure to suit the requirements of the case.—S. C.]

444 FARADAY, JAMES, & SON, 114 Wardour Street—
Manufacturers.

Gas chandelier, upon Professor Faraday's ventilating principle, by which the carbonic-acid gas, soot, moisture, and other noxious products, are carried off by the descending draught. The lights are enclosed in glass chimneys, covered with plates of mica, and the burnt air passes through tubes along each arm to the body of the chandelier, and thence up the centre shaft, to be discharged into the open air, or an adjoining flue.

445 DERAUER, HENRY, 10 & 11 Creed Lane—
Designer and Manufacturer.

Concentrating gas-lamp; for externally illuminating shop-windows, on the parabolic construction.

446 CLARK, R., & RESTELL, T., 447 Strand—Designers
and Inventors.

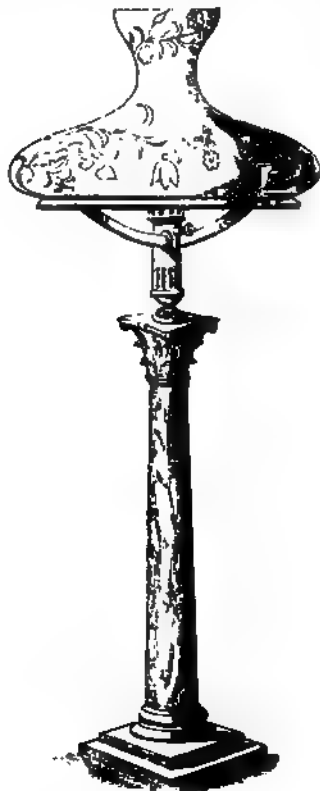
Various lamps and gas-burners.

New locks.

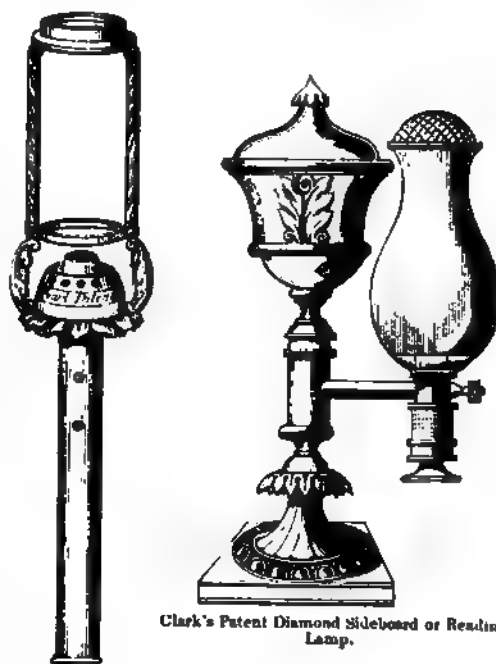
Railway passengers' communication.

A model of a new principle in clockwork: gravitating without pendulum.

The accompanying cuts represent the various lamps adapted for use in hot climates, and for other purposes. These lamps, except where named, are intended to burn cocoa-nut, olive, and other oils.



Clark's Patent Diamond Table Lamp.



Clark's Patent Diamond Sideboard or Reading Lamp.

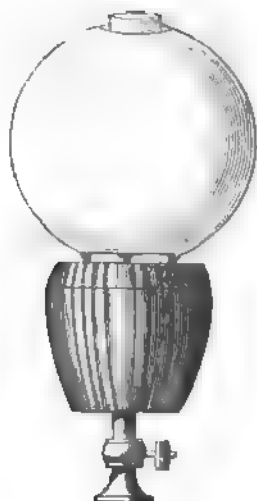
Clark's Pearl Hanging Lamp.



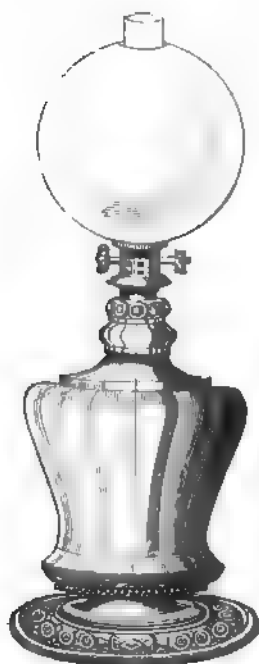
Clark's Patent Diamond Table Lamp.



Clark's Patent Star Night Light.



Clark's Patent Reflector for Gas Lights.



Clark's Improved Oil Lamp, with Reservoir below the Light

PALMER & Co., Sutton Street, Clerkenwell—
Manufacturers.

lamps, to burn magnam candles, and designed to give light of argand lamps.
lamps, to burn mid-size candles, and designed to give light of four mould-candles.
candle-lamps, to burn candles; for warehouses, stables, out-buildings.

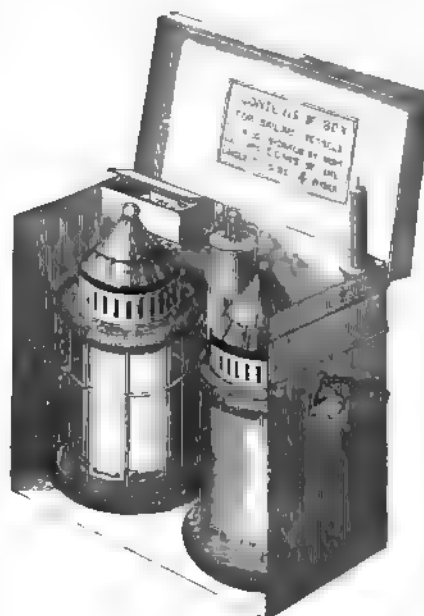
HOLLIDAY, READ, Huddersfield, and 128 Holborn Hill, London—Inventor and Manufacturer.

Patent self-generating gas lamps for out-door uses. Lamp on the same principle, for in-door purposes. Patent al-lights, &c., and instrument for lighting the lamps.

Sulphate, muriate, carbonate, and liquor of ammonia, naphtha, &c., extracted from the ammoniacal liquor and tar, produced by the distillation of coal. The naphtha is for the use of lamps; the ammoniacal liquor is used in the West Riding of York for scouring woollen yarns, dyeing, &c.; the sulphate of ammonia for alum, manure, &c.; and the muriate of ammonia, carbonate of ammonia, &c., for other purposes.

449 RETTIE, M., & Sons, Aberdeen—Manufacturers.

Patent distress signal-lamps, for steamers and sailing vessels in distress, invented by Robert Rettie, C.E., London. These lamps are shown complete and ready for use in the cut annexed.



Rettie's Patent Distress Signal-Lamp.

Patent signal lamp, for preventing collision of vessels and steamers at sea.

450 HOLGATE, JAMES, 6 Arthur Street East—Inventor and part Designer.

Registered improved hand-signal lamp, to show red, green, and white lights. Another, with the green and red glasses revolving inside the case.

Tail-end signal lamp, for railways, with bronze head, and registered china reflector.

Registered buffer lamp for engines, showing a white light. A red glass revolves in the interior, to convert it into a danger signal when required. Patent glass reflector.

Buffer lamp, with parabolic reflector.

Gauge lamp for engines, constructed to answer also as a danger hand signal lamp for engine-drivers.

Patterns of handles, hinges, locks, bolts and nuts, curtain panels, curtain rods, escutcheons, and all other articles in hardware required in the construction of railway carriages.

451 SQUIRE, RICHARD, 16 South Street, Manchester Square—Manufacturer.

Pair of plated basteria carriage lamps. Pair of carriage lamps.

Railway roof lamp, with new key burner for simplicity in trimming.

Railway tail lamp, with moveable head, intended to clear out corroded soot.

Hand signal, containing extra large burner. Foot-board lamp for carriage. Improved magic lantern.

Travelling Etna, intended to boil water in three minutes.

Improved lamp for singeing horses.

452 SMITHS & Co., *Blair Street, Edinburgh*—Designers and Manufacturers.

Stationary railway-signal, lantern, and lamp. The air is admitted through holes in the bottom of the lantern, and closed during high winds by a sliding cover working from the outside. The heated air escapes by a vane moving on the top. The lamp has a flat wick, which can be raised and depressed without making its surface unequal, and thus causing smoke. The saving in the consumption of oil is stated to be nearly one-half.

A lantern and lamp for the head or tail of a railway train. The colours of the light can be changed by bringing coloured glasses between the flame and the outer lens. The lamp has an argand burner, with a new and simple plan for fixing the wick-raiser, and preventing the wick from shaking down by the motion of the carriage.

A railway-carriage roof lamp, of a new construction, by which the oil does not overflow, and the light is kept steady.

A stage-coach lantern and lamp, with reflectors of a composition metal free from tarnish, and giving a clear white light.

Hand signal-lamp for a railway, with a red and a green slide for changing colours.

453 BIGGS, SAMUEL, *Frons, Somerset*—Designer and Manufacturer.

Tin moulds for jelly, blanc mange, rice, Savoy cake, raised pie, patties, Italian cheese pudding, &c. Plain cutters for paste and vegetable. Root cutters. All made by hand.

455 SAUNDERS, WM. JOHN, *11 Polygon, Charendon Square*—Inventor and Manufacturer.

Pneumatic solar lamp for railway signals, lighthouses, and domestic purposes, said to be equal in intensity to that of gas, adapted for the combustion of common oil, either animal or vegetable, and free from noxious effects.

458 BRIGHT, RICHARD, *37 Bruton Street*—Inventor and Manufacturer.

Various lamps. Patent lamp wicks, cistern-top, or floating cover, to prevent the action of the atmosphere on oil or other liquids.

459 CHILDS, JAMES, *Brentford*—Manufacturer.

Brass fountain lamp, with four-wick adjusting concentric burner, for a lighthouse lantern.

461 HUGHES, JOHN GEORGE, *158 Strand*—Proprietor.

New designs for lamps to burn candles of various sizes. Inkstand, bronzed (boy holding torch). Three-light candelabra, bronzed. New design for a gem spirit-lamp. Lantern for a hall. Flower-stand tripod, lacquered. New design for an oil-lamp. Candelabra, lacquered. Three-light gas chandelier, fuchsia pattern.

Model of a marquise.

462 BARLOW, JAMES, *14 King William Street, Mansion House, City*—Inventor and Manufacturer.

An illuminator, or vault light, illustrating a method of admitting daylight into vaults, ships' decks, underground apartments, &c.; the apertures are each filled with a lens of peculiar construction for the admission of light.

Newly-invented self-acting syphon tap.

464 BLACK, BENJAMIN, *49 South Molton Street*—Manufacturer.

Ornamented carriage lamp.

465 PYRKE, J. S., & SONS, *Dorington Street*—Manufacturers.

Bronze tea-urns and swing tea-kettle, of new designs.

470 SARSON, THOMAS FREDERICK, *Leicester*—Manufacturer.

Gas lamp, with ornamental construction for ventilation.

472 NIBBS, JAMES SYMON, *Baslow, Blakesell*—Inventor.

Forms of the "oxidate condensing lamp," for the economical distribution of artificial light. The burner is constructed to effect the combustion of the whole of the carbon of the oil, and is said to produce a greater amount of light from a given quantity of oil. The common oils may be used.

Improved weather lantern, for out-door purposes, cellars, &c., constructed on the same principle, with other improvements; and used for ships, railway carriages, and other vehicles, as side lights, &c.

474 HAWKINS, JAMES, *42 Bow Street, Dublin*—Manufacturer.

Circular silver-mounted Clarence carriage lamps, for spirit or candles.

476 DOWSON, JOSEPH EMERSON, *123 Oxford Street*—Manufacturer.

Cundy's patent hot-air ventilating stove. The interior is made of fire-clay, and no surface iron comes in contact with the air. The fresh external air is admitted to the interior of the stove, there warmed to a moderate temperature, and then passed into the apartment, by which a stream of pure warm air is supplied.

477 BROWN & REDPATH, *Commercial Road, near West India Docks*—Patentees and Manufacturers.

Fire hearth, or cooking apparatus for ships' use. This specimen will cook for 56 seamen and 30 passengers. The whole of H.M. steam ships are supplied with these hearths, which can be made to cook for 1,000 men, and are used in first-class passenger ships to India.

Specimens of the most approved lanterns used for marine purposes.

479 CALLAM, THOMAS, *56 Shore, Leith*—Inventor.

Model of a ship's cooking apparatus, in various sizes. Economy in fuel is stated to be attained by the use of a damper, moved at the side under the chimney; this, when pushed in, closes the draught under the boilers, or coppers, as they are technically called, and opens it at the side; when drawn out, the side-port is shut, the main flue opened, and the flame makes a circuit under the coppers before reaching the chimney. Baking, boiling, roasting, and steaming may be all performed at the same time.

480 SEARLE, CHARLES, M.D., *51 Weymouth Street*—Inventor and Patentee.

Tubulated solid stove or heat condenser, for warming libraries, schools, passages, shops, &c. The heated gases of the fire in their passage to the chimney pass through a lengthened tubulated solid mass of fire-brick, constituting the body of the stove.

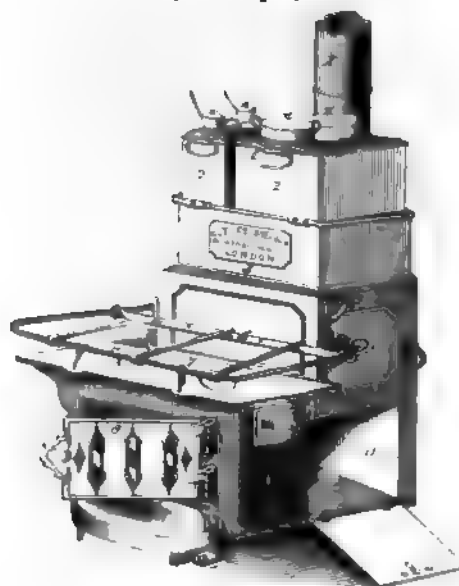
Fire-bricks, with porcelain surface, and in iron casing of two forms.

481 GOODBENIERE, GEORGE THOMAS, *9 Wellclose Square*—Manufacturer.

Improved ship's hearth, constructed to cook for fifty men; containing furnace, so arranged that an admission of air is obtained between the fire and the oven, to prevent the latter from being burned through, and to save expense in repairs. It will boil, bake, roast, and steam with despatch. This hearth is represented in the cut in the next page.

L. M. N. O. 18 to 20, & 25 to 27; O. 9, & P. 3 to 29.

Description of the ship's hearth:—1. Funnel-pipe; 2. steamer; 3. boiler; 4. damper handle; 5. guard-rail; 6. side-damper; 7. hot-plate; 8. front door to furnace; 9. side door to furnace; 10. ash-pan; 11. oven.



Goodfellow's Improved Ship's Hearth.

[The most extravagant domestic apparatus is the ordinary kitchen range, the quantity of non-effective coal consumed being enormous. To produce the utmost effect from fuel, the heat must be retained in flues around the substance to be cooked as long as it imparts heat, and only suffered to escape by the chimney when it is too cold to be of service. Count Rumford says (Essay x. p. 31), 'More fuel is frequently consumed in a kitchen range to boil a tea kettle than, with proper management, would be sufficient to cook a good dinner for fifty men.' The more space and fuel ships' hearths economise, the more effective they are.—S. C.]

The emigrants' hearth, which can be made to any size required.

482 DEFRIES, NATHAN, 221 Regent Street—Inventor and Patentee.

Diagrams, illustrating a bath heated by gas, gas works, and a new mode of lighting, heating, and ventilating conservatories and buildings.

Gas stoves for warming and ventilating rooms and buildings, and for culinary purposes. By means of one of these stoves, a person may roast, boil, bake, steam, and stew at the same time.

Patent gas bath, by which 45 gallons of water may be heated in six minutes, from 45 to 90 degrees Fahrenheit, at a cost of less than 2d. for gas. This invention consists in the application of jets of gas acting on metallic plates at the bottom of the bath, by means of a simple apparatus.

The process of making coal gas is this. Bituminous coal is thrown into a retort, heated to redness, and closed up, with the exception of a pipe which leads the evolved gas and other volatile products to the condenser, where, coming in contact with cold surfaces, certain impurities are thrown down. The remaining gases then pass through the scrubber, filled with ashes, or any material presenting a large surface, by which oily matters, &c., are separated. The wash-vessel brings the gases in contact with water, when soluble impurities are removed, the lime in

the purifier finally taking up sulphuretted hydrogen. The gas, fit now for illumination, is measured by the meter, and stored in the gas-holder, from whence it is distributed through the street mains to the burners.—S. C.]

Gas-works, showing the whole process of gas-making, from the retorts to the burners, illustrating the passage through the new condenser; the scrubber, the washer, the wet lime purifier, the new rotary dry lime purifier, and the dry lime purifier in present use.

Dry station meter, formed almost wholly of glass, to show its action, and thence through a telescope gasometer to the street mains. Patent conservatory, with entirely new mode of heating, lighting, and ventilating conservatories, churches, and any other public and private buildings.

[Heating by means of a gas flame is economical, cleanly, and safe; economical, because the required amount of heat can be given at once, and the gas turned off when the purpose has been effected; cleanly, because there is no dust or ashes; and safe, because there are no sparks and no soot formed, by which a chimney flue can be inflamed.—S. C.]

The patent dry gas-meter is constructed of all sizes from one to one thousand lights; the latter size, which was made for the new House of Commons, passes ten thousand cubic feet of gas per hour.

483 GARTON & JARVIS, Exeter—Inventors and Manufacturers.

Improved universal cooking apparatus, or range-stove, including mantelpiece, with oven, hot-closet, and hot-plate, and expanding and contracting fireplace.

Exonian cooking apparatus; cast oven, hot-closet, with large ventilated roasting-chamber, dripping-pan to draw out, hot-plate, and rings and covers for broiling.

Portable cottage cooking-stove, with oven, hot-plate, boiler, and draw-off cock.

Wrought-iron cylindrical hot-house boiler, being a cylinder of water with fireplace in the centre, and a thin sheet of water at the end.

Solar, or convolute hot-house boiler; is a sheet of water coiled in the form of a scroll, with fire in the centre, and fixed horizontally.

Double vertical hot-house boiler (cast), with the fire in its centre; the flame, leaving the lower boiler, impinges on the crown-boiler.

Model hot-water apparatus, for warming hot-houses, conservatories, churches, and private residences.

Working model double-action hydraulic cider-press.

486 HALE, THOMAS, & Co., Bristol—Designers and Manufacturers.

Ornamental and Gothic swing gas brackets; also, water slide chandeliers in brass, bronze, &c. New registered designs, in tinted glasses, for the same.

One of these ornamental brackets is shown in the annexed cut.



Hale and Co.'s Ornamental Brackets.

Fig. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

hour clock bells; set of house-bells. New plan for steam lakering machine, with model.

Brass and copper tea-kettles. A newly-invented kettle for warming water, being suspended from a bar of the grate. New designs for coal scoops.

Registered copper bath, made to suit the natural position of the body when in a sitting posture; to be heated by gas or other means.

Brass figures (a Roman gladiator), bronzed, and (a flying Mercury) in a new style of laker.

487 HODGES & SONS, *Dublin*—Manufacturers.
Copper kettles and lumps.

488 LOYSEL, EDWARD, 34 *Essex Street, Strand*—Inventor.
New coffee filters. The invention consists in obtaining a vacuum in the coffee-pot, without expense, by the condensation of steam.

Potato roaster of a new description, which may be used either in the kitchen or in the parlour.

489 KEPP & CO., 40, 41, & 42 *Chandos Street, Charing Cross*—Manufacturers.

Copper bath, with set of cocks complete, and shower-bath over. Steamers, for fish, meat, and vegetables. Range-worm, or coil of tinned-copper hot-water pipes. Copper skylight frame. Copper covering for roofs. Moulded copper cornice-gutter, with moulded cistern-heads and rain-water pipes attached. Hot-water boiler for circulation. Double meat-boiler, tinned inside. Dish-washer, tinned inside. Moulds for jellies, cakes, &c. Brass ornamental lantern. Two ornamental copper vases; the ornamental work raised by hand. Copper saddle-boiler. Ornamental wrought-copper casement. Copper clock-hands. Zinc and copper chimney pipes.

490 WILSON, R. & W., 49 *Windour Street, Soho*—Designers and Manufacturers.

Ornamental shower-bath of tinned iron, half circular form, fitted with mahogany seat; the same, of a square form.

Plunging-bath, with shower combined, of tinned iron. The same, fitted with taps, plates, and levers, to supersede mahogany fittings. Roman plunging-baths. Ornamental hip-baths. Child's nursery-bath, with loose frame.

491 NOIRBAIN, JULES, *Hampstead House, St. John's Wood*, and 131 *Regent Street*—Inventor.

Patent ventilating open fire-place, with chimney-glass and ornaments; the chimney-piece and frame, of glass, are made of black marble in the Louis Quatorze style; the room is ventilated by means of an aperture behind the top ornament of the glass frame; from this aperture a pipe conveys the vitiated air of the room into a chamber at the back and sides of the grate, from whence it passes into the chimney. The panels, or front of the fire-place, are made of beaten copper, highly polished.

In order to ensure health and comfort in the heating of an apartment, various conditions are required: 1st. That the grate which warms the apartment (from 50 to 65 degrees being the most advantageous temperature) should produce a perfect ventilation or change of air, both in the upper and lower part of the room. To obtain this, the action of the heat and of the air for ventilation must be so combined as to be dependent one upon the other, and to act together.

It is also essential to health that the air should be perfectly free from all smell, smoke, and gas, arising from the fuel. To obtain this, the bars of the grate must not project beyond the opening of the fire-place, and that opening should be smaller than the sectional diameter of the chimney; by which means any chimney, however defective in construction, will be prevented from smoking.

2nd. It is necessary that the heat should be equally dispersed throughout the apartment, so that there should be no draughts. For this purpose the air should be

allowed to escape from the room not only up the chimney from the lower part of the room, but also from the upper part, through another opening leading to the chimney, thereby causing free circulation of the air throughout the whole of the apartment.

In order that the apartment may be sufficiently heated, it is not necessary with these stoves to make up a large fire, by burning a large quantity of fuel, but the intensity of the fire should be increased by the application of a draught-plate (made of glass or wire-gauze) to the opening; a pipe is also placed in the chimney, and communicates with the ventilating or hot-air chamber, at one end, and with the upper part of the apartment at the other, in order to throw out warm air into the upper part of the room.

On the other hand, in order that the apartment should not be overheated, a double-action valve is placed at the lower part of the fire-place, and communicates with the pipe in the chimney; by this means the opening, instead of throwing out warm air, is made to draw off the hot and vitiated air from the upper part of the room when required.

To ensure safety, by preventing a chimney from taking fire, care should be taken that the smoke be not allowed to become condensed in the chimney: to prevent which, the opening should not be too high, so that the air to support combustion may be well heated before ascending the chimney and mixing with the smoke: if the opening be too high, the air would enter at too great a distance from the fire to become sufficiently warmed, and consequently the smoke would condense and form soot.

The accumulation of soot at the sides and back of the register cannot take place in the improved system, as is often the case in the ordinary construction of a grate. Also, in the old plan, the flame is allowed to act upon the sides of the chimney to which the soot adheres; but in the improved system the fire is contained in an iron case, from three to four feet high, which does not touch the chimney; thus leaving a hollow space outside for the reception of the soot (if any is formed), and removing it from the part where flame is allowed to exist.

For the convenience of sweeping the chimney, a small door or opening is provided: by this means the chimneys are better swept, and the inconvenience of having the sweeps and soot-bags in the apartment is avoided.

A considerable economy is obtained by thoroughly heating an apartment with the least possible expenditure of fuel. For this purpose there must be a due proportion between the size of the outlet for the smoke from the case and the area of the grate, and, consequently, of the quantity of fuel consumed.

Cleanliness is insured by the employment of a moveable ash-pan, projecting a considerable distance from the fire, and independent of the fender.

The improved grates and fire-places may be made of various forms and designs, so as to accord with the chimney-piece and other architectural embellishments of the apartment, on the well-known principle that the frame for an object should be made to form, at the same time, an ornament, thus making a harmonious whole.

Ventilating open fire-places, made of porcelain, in the form of a pedestal, to be placed in a recess under a chimney, and having the panels made of ornamental porcelain; the same of bright polished copper, adapted to a pilastre.

493 GILLESPIE & SON, 62 *Broughton Street, Edinburgh*—Inventors and Manufacturers.

Model of the Victoria shower-bath; the reservoir moving up and down on pulleys.

494 GILBERT, SAMUEL, *Ironmonger Street, Stamford, Lincolnshire*—Inventor and Manufacturer.

Registered Somapantic bath. Exhibited for elegance and utility.

495 MOGGIDGE, M., *The Willows, Swanssea*—Inventor.
Model of a sponging bath.

406 HARDWICKE, WM., 32 *Hutton Garden*—Inventor.

A portable domestic bath room, with warm and cold water reservoirs attached; the water is heated by a flow and return pipe, in connexion with a small stove placed in the recess adjoining fire place; the water may be warmed, and the room lighted and ventilated by gas.

408 MOSS, RICHARD, *Batholomew Square*—Inventor and Manufacturer.

A registered copper vapour-bath, with internal trough and box for herbs, &c.; fitted upon a stand (oak and cast iron) in copper, mounted by a twined leaf, with glass handle; worked by a spirit-lamp, with glass handle, &c. mode of forming the thumb-piece. Medicated vapour can be applied by this instrument.

409 DAWBEE & DUMBLETON, *South Tern, Yarnworth*—Inventors.

Working model of a stone filter in a slate cistern.

410 BRAY, CHARLES, 14 *Combe Street, Leicester Square*—Inventor.

Sanitary pedestal wash-stand, of papier maché, japanned, ornamented with gold mouldings; the interior fitted with metal cistern for water, and reservoir for waste; with soap dishes, &c. The same, circular, made of metal japanned.

Four shower bath, with reservoir, curtain, and pan.

"The anhydropesterion," for dressing potatoes, with attachment, which may be placed inside, for hashing or boiling.

Plated and spoon warmers. Plated rests for a carving and fork, with useful appendages. Crumb tray, made of papier maché. Portable machine for boiling water.

411 DALL, RICHARD, 195 *Upper Thames Street*—Manufacturer.

Model of a warm bath and heating apparatus, consisting of a copper bath, lined and japanned, with a cylindrical copper boiler so constructed that on filling the bath with water the boiler is charged, and on lighting the fire the water circulates from the boiler to the bath until it reaches the required temperature, when the fire may be regulated by means of the ventilator, or extinguished by closing the grating, and the bath may be used. The boiler is formed that the fire acts directly on its sides, which are entirely surrounded with water.

412 FAULDING, JOSEPH, 11 *Leeds Street, Hull*—Inventor and Producer.

Several sets of ornamental and cylindrical sawing; for sawing joint pan frames and cabinet furniture, and for sawing and engraving patterns for castings cut with the gas retort for moulding.

Registered portable vapour bath; for the head or a general application of steam heat to the human body.

413 DOWDLE, WILLIAM, *100, New Bond Street*—Inventor and Manufacturer.

Ornamented wrought iron safe or chest, for deeds, &c. &c. patent lock or security lock, having fourteen reverse keys, and a key to turn of the key, and an improved set of drawers and desk, rising out of the chest.

414 MATHER, J., *10, New Bond Street*—Inventor.

Method of applying and setting iron.

415 LEADGATER, JOHN, 1 *Leeds Street, Hull*—Inventor.

Method of preventing side fire proof repository, chest, &c. from being set on fire by fire, and resisting in fire, and preventing fire from entering heavy materials.

416 TAYN & SONS, *10, New Bond Street*—Inventors and Manufacturers.

Several sets of patent fire proof drawers, with copper and iron drawers fitted with patent chamber locks. Security

from fire is obtained by filling hollow chambers with chemical salts, capable of resisting the action of fire unless it is increased to a great degree. The salts become fused, and by throwing off moisture afford protection to the contents of the safe. Fitted up as a cabinet and writing desk.

[To render a safe "fire-proof," it is not merely necessary that it be made of non-combustible material, such as iron, for being quick conductors of heat, a temperature capable of charring the contents is speedily communicated when the outside is in contact with burning substances; it becomes, therefore, essential that some matter capable of resisting the transmission of heat be placed between the iron outside and the things within, which are to be preserved from fire. S. C.]

508 FISHER, JOHN NORTH, 10 *Charles Street, Manchester Square*—Inventor.

Safety boxes for collecting money bags in railways; also for counting-houses and offices for private letters, &c.

509 BAKER, CHARLES, *Arch Cottage, Rotherfield Street, Islington*—Inventor.

Fire-proof safe, on a new principle. Pattern of a new oval hair-brush, and of a pocket tooth-brush. Model of a writing-desk.

510 MARR, WILLIAM, 52 *Canwick*—Manufacturer.

Wrought iron patent fire proof strong room, secured with the double chamber wheel action detector lock.

516 ROSEDALE, C., *High Street, Hull*—Inventor.

Service box, applicable to every description of water-closet, and not requiring the cistern direct over head.

517 CLARK, C. CHAPMAN, *Reading*—Inventor.

Registered self acting sanitary water closet. Self acting valve trap for sinks, &c., proposed as an improvement on the bell trap.

518 GRAY, THOMAS H., 79 *Kings William Street, Hull*—Inventor and Manufacturer.

Patent inventions of different descriptions. Spherical pump; sanitary cistern for cleansing drains and sewers; self-closing or other valve cocks for high and low pressure; vent pipes; deck illuminating ventilator; water closets; models of side ports or scuttles; anchor stopper; lightning conductor; wash hand basin, with self-closing cock; sink apparatus for cleansing drains and sewers; lubricator; hydrant, or fire cock with stand pipe.

519 HODGINS, THOMAS, 1 *Leeds Street, Hull*—Designer and Manufacturer.

Church bell. Fire bell, and bell fitted with a mechanical device. Altar bell, fixed on an ornamental stand carved in Irish bog oak. Lamp and bell brass force and lift pump, mounted on oak planks, with copper vessels. Metal pump, with brass working device, similarly mounted.

Patent composition paper for fluid, and from 4 to 100 feet of cloth, in widths, varying from 2 to 1,000 feet each.

520 TURNER, EDWARD W. K., 1 *Leeds Street, Hull*—Inventor.

Model to illustrate a method of increasing the force of the pump action of water in a pump, and for the supply of water, &c. &c.

522 DAVIS, C. C. J., *Warrington, Lancashire*—Inventor and Manufacturer.

Particulate water, and a valve, &c. &c. for preventing them from being stopped, or for opening them when stopped.

523 McCLELLAN, J. J., *10, New Bond Street*—Inventor.

Spirit meter, for measuring liquids by index.

524 GUEST & CHRYMES, Rotherham Brass Works—Manufacturers, Patentees, and Proprietors.

Tubular water-closet, with ornamental cast-iron base and back, in dull and bright gold; the arms and top of the back stuffed, and covered with embossed crimson velvet, and furnished with porcelain basin and tube; the piston cock forming the working part of the apparatus. Invented and registered by William Kirkwood, of Edinburgh; improved by the exhibitors.

Hydrant or fire-cock. Cast-iron box or case, enclosing self-acting ball valve, of solid gutta percha, closed by the pressure of water against a vulcanized India-rubber seating. Stand pipe to the same, of copper tube, with revolving discharge pipes, screwed for connecting to leather or other hose. Of great utility in large towns. When supplied with water at high pressure, it is instantly available for extinguishing fires, and for street cleansing. —Patent belongs to Messrs. J. Bateman and Alfred Moore, of Manchester.

Chrymes's patent hydrant or fire-cock, similar to the preceding, but with brass disc valve instead of ball.

Patent high-pressure bib-cock, having no ground surfaces; free from leakage under great pressure; and repairable by a renewal of the leather washer to the loose valve; with other advantages. The same, cut open to show the action.

Patent high-pressure ball-cock, easy in action, and requiring only three or four inches rise or fall of water in the cistern. Patent high-pressure stop-cock.

High-pressure double-valve cock, which can be repaired without requiring the water to be taken off. The same, cut open to show the action.

[When water is allowed to run through a pipe, and is then suddenly shut off, it produces a violent shock, similar to that which would occur in the sudden stoppage of the motion of a solid body, frequently causing the fracture of the pipe, particularly when the pressure column is high.—W. D. L. R.]

524A GUEST, JOHN & WILLIAM, Little Hampton Street, Birmingham—Manufacturers.

The following articles all gilt:—Cornelian tazza, with stand; onyx tazza, with figure. Goat inkstand, with ruby bottles; tortoise inkstand; Elizabethan inkstand, with blue bottle; inkstand, with lion top. Match-box, with medallions. Vesta match-lamp, with blue glass. Casket. Octagon snuff-box. Bell, with vine-stem handle. Chanticleer bell. Bell, with oxidized figure. Almanack. Elizabethan taper-stand. Gothic candlestick. Postage-stamp box and damper. Mounted onyx cup taper-stand. Engraved flower-holder. Figure taper-stand. Chatelaines, with appendages. Match-box, with Queen figure pillar lamp.

525 WISE, ROBERT, 38 Charing Cross—Inventor and Manufacturer.

Patent self-acting portable water-closet.

529 ASHLEY, JOHN, 29 North Street, Hackney—Inventor and Manufacturer.

Improved water-closet, dispensing with all cranks, wires, valves, casings, &c.; fitted up on improved principles, and fixed without nails, screws, or brads, so that it might be taken down and refixed without damaging walls, paint, or paper.

530 DOWNTON, J., 4 Conant Place, Commercial Road, Limehouse—Patentee and Manufacturer.

Patent water-closet; its principle consists in having a force pump attached to the basin, and four valves alternately shutting against the water.

531 MARSDEN, CHARLES, Waterloo House, Kingsland—Inventor and Manufacturer.

Patent ventilated thimbles. Elastic finger guards, with a silver shield; scissors, with a guide on the handle. Registered funnels for filling lamps, &c., with naphtha or spirits. Propelling apparatus for the arms and legs.

Patent rotary water-closet; and drain trap, sewer trap, and middle-sewer trap, on the same principle. Screens of marble paper for decorations.

532 GREEN, S., & Co., Princes Street, Lambeth—Manufacturers.

Henry & Co.'s patent water filter on the principle of ascension. The same, in section, showing the action. Registered syphon flushing basin and self-acting closet connexions, fitted in wood-work complete. Else's registered beer and spirit preserves.

533 CHAMBERS & ROBBINS, 47 Carey Street, Lincoln's Inn Fields—Manufacturers.

Portable water-closet, with improvements.

534 LAMBERT, T., New Cut, Lambeth—Inventor and Manufacturer.

Flexible diaphragm valve-cock, for water; an application of canvas water-proofed by vulcanized India-rubber, which, being pressed upon the aperture in the metal casing by means of a screw, prevents the flow of water. Section in brass.

Double diaphragm valve-cock, for water. The upper diaphragm is held to its seat by the pressure of the column of water upon the lower diaphragm; this arrangement is important when desirable to open the valve its full area, by a quarter revolution of a thread or screw, as it admits of a triple thread being used. Section in brass.

Fig. 1.

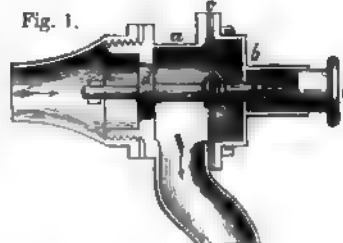


Fig. 2.

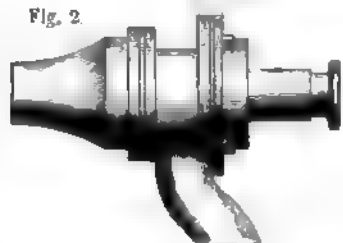


Fig. 3.



Lambert's Patent Vulcanized Valve-cocks.

Description of the patent vulcanized india-rubber water-tap. Fig. 1 shows the tap in section.

a is the body of the valve; *b* is the cover; *c* is the flexible diaphragm confined at its edges, and serving the purposes of a stuffing-box; *d* is the valve, which is held to its seating by the pressure of the water; *e* is the handle, or knob, by means of which the valve is opened: by this arrangement it cannot be left open. There are other methods for opening and closing the same; the arrows denote the waterway, when open. Fig. 2 shows the tap out in section, and Fig. 3 represents another form of the tap.

A high-pressure ball or cistern valve. A cup-leather is connected to the diaphragm, which assists the ball to resist pressure. It cannot become fixed.

A self closing valve-cock, for water. The diaphragm is used as a substitute for a stuffing box. Section in brass. Another, the body in glass; can be made in metal. A ball, or cistern valve, of the same construction. Section in brass.

(These taps are also exhibited in Class 5, No. 478A.)

Flexible diaphragm stop-cock, in iron; with hose union; and hydrant, with iron box and lid, and union hose screw. Cheap fire cock.

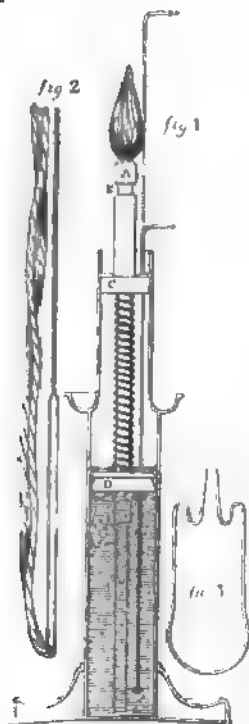
Economic lamp, for the use of the artisan, which burns vegetable oil, and gives a light equal to the best candle, the cost of burning being a penny for 12 hours. The same, with centre body in glass, to show the internal arrangement. This lamp is shown in the annexed cut.

Description of the cut.

- Fig. 1. A, Cap.
B, Handle for raising piston D.
C, Valve for return-oil.
E, Fixed tube.

Fig. 2. Wick and wire bodkin.

Fig. 3. Nipper.



Lambert's Economic Lamp.

A self acting water-closet apparatus, connected to the main water supply. Another, in which the valve admits the water supply, and is acted upon by the door. A blue lean closet, and valve affixed.

Samples of tin pipe made from Cornish tin. Specimens of gun metal steam-cocks and locomotive fittings.

A double cone union joint, for connecting pipes without the aid of solder.

535 PRICE, —, Inventor.
Patent washing machine.

536 DAVIS, JOHN BENJAMIN, 63 Russell Street —
Inventor and Manufacturer.

Registered valve for steam, water, gas, or any other fluid, called a clear-way valve, intended to supersede the common plug cock, especially the larger sizes.

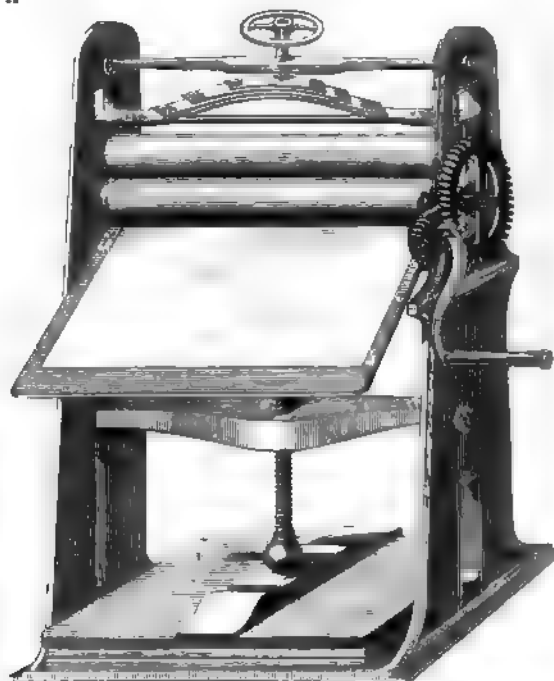
538 ADAMS, JOHN, Selby—Producer and Manufacturer.
Improved washing, wringing, and mangling machine.

539 TARKER, WILLIAM, St. James's Road, Halifax—
Designer and Manufacturer.
Machine for washing, wringing, and mangling.

540 WILKINSON, —, —Inventor.
Improved patent mangle.

541 PEARSON, —, Leeds—Inventor.
Washing, wringing, and mangling machine.

542 TINDALL, E. O. D. L., Scarborough—Inventor.
Registered mangle, with horizontal spring pressure. This mangle is represented in the adjoining cut. The application of the horizontal spring is also seen in this illustration.



Tindall's Registered Mangle.

Napkin press. Kitchen range.

543 REID, JAMES, 10 Tonnant Place, Aberdeen—Designer
and Inventor.

Model of a bathing, washing, wringing, and mangling machine. A self-acting cradle.

544 TABIN, MARC LOUIS ADAM, 8 Nelson Street, Morn-
ington Crescent, Camden Town—Designer and
Inventor.

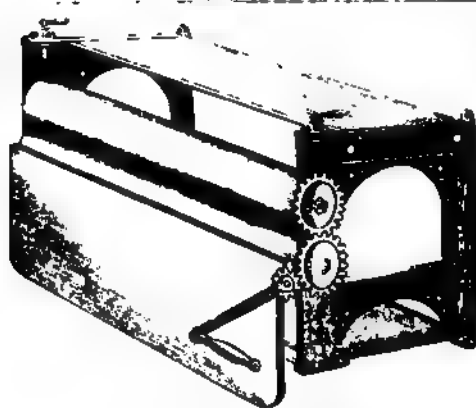
Improved dust pan, with a reservoir to contain the dust, and a means of quickly discharging it.

Book and barrel form cartridge pouches for sportsmen; for the protection of a new powder-and ball cartridge.

Self descending reflective nozzle, with wire and shade.
Gold embroidered pillar candle lamp, magnifying reflector.

545 STUTTERD, J., Bambergh—Inventor and
Manufacturer.

New mangle, with elastic pressure, which may be fixed either to the wall or table. The elastic pressure is obtained by an application of vulcanized caoutchouc above the rollers. It may be used as a table or fixed to a wall, being compact, simple, and efficient. The following cut represents this mangle; see next page.



Stutter's New Elastic Pressure Mangle.

Improved portable mangle, on the same principle. Small model, of varied construction. New roller window-blind.

546 FRYER, RICHARD, 4 Wood Street, Spitalfields—
Inventor and Manufacturer.

A washing, wringing, and mangling machine.

Double-acting washing-machine, by which one person can wash different sorts, or first and second, at the same time. Train of models to illustrate the same.

547 BAKER & Co., 65 Fore Street, Cripplegate—
Inventors and Manufacturers.

A revolving mangle, for pressing and putting a gloss on linen and other woven fabrics, &c. Capable of mangling articles of great length. It is simple in its construction, and can be worked by a boy.

548 MACALPINE, WM., Hammersmith—Inventor.

Patent washing machine for washing linen in hospitals, or cleaning rags for the manufacture of paper.

A patent revolving vessel with steam apparatus for washing heavy goods.

550 TUPPER & CABR, 3 Mission House Place, City—
Patentees and Manufacturers.

Specimens of corrugated and plain galvanized iron, for roofing purposes. Rain-water pipe, both cast and wrought; guttering, gas and water tubes. Chains, of various sizes. Nails; screws; ships' bolts; wire-rope. Cast iron galvanized garden sofas, chairs, and flower-stands. Various sorts of galvanized wire-netting and fencing; also galvanized wire for telegraph purposes. Galvanized fenders, fire-irons, fire-guards, fire-dogs, &c. Also various descriptions of ornamental cast-iron work galvanized; and specimens of bits, curb chains, stirrups, and buckles. The whole intended to show the innumerable articles to which the process of galvanizing can be applied.

[The process of galvanizing is one comparatively new to this country, it having been introduced under a French patent granted to Mons. Sorel, about eight years ago. The process consists in giving a coating of metallic zinc (which zinc should be of the purest description) to any article in iron, the iron being first chemically prepared, by a very interesting process, for the reception of the zinc. The demand for this very useful manufacture has been but limited till within the last few years; but the attention of the Government has of late been turned to it, and it has been used extensively in all the dock-yards for roofing purposes, and on board all the vessels in the navy for lining the coal-bunkers.]

551 STANLEY, C., 238 High Street, Borough—Inventor.
Model of coal scales for ships, with regulating lever.

552 ORFWOOD, G., 82 Bishopsgate Street—Inventor.
Patent self-acting coffee roaster.

553 KENT, GEORGE, 329 Strand—Inventor, Patentee, Manufacturer.

Rotary knife-cleaning machine, in eight sizes, an section. This machine is represented in fig. 1. l transverse section, in which the position of the l and the arrangement of the rubbing surfaces are sh In fig. 2, a perpendicular section is given, represen the interior of the machine. In fig. 3, a side eleva is shown, with the apertures for the knife.

Fig. 1.

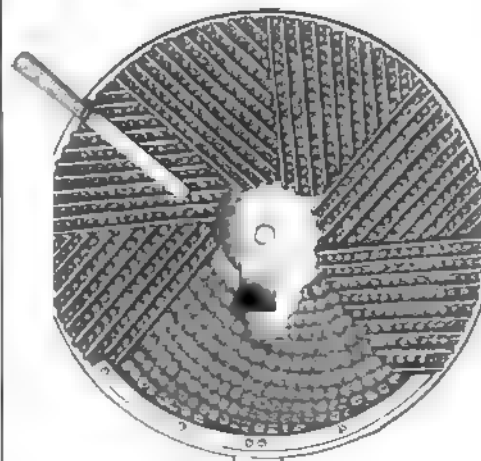
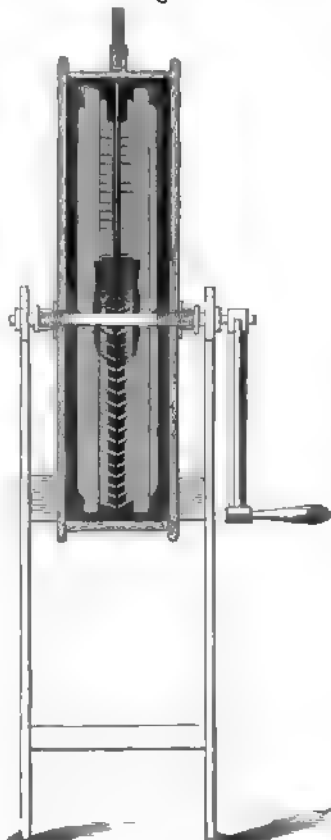
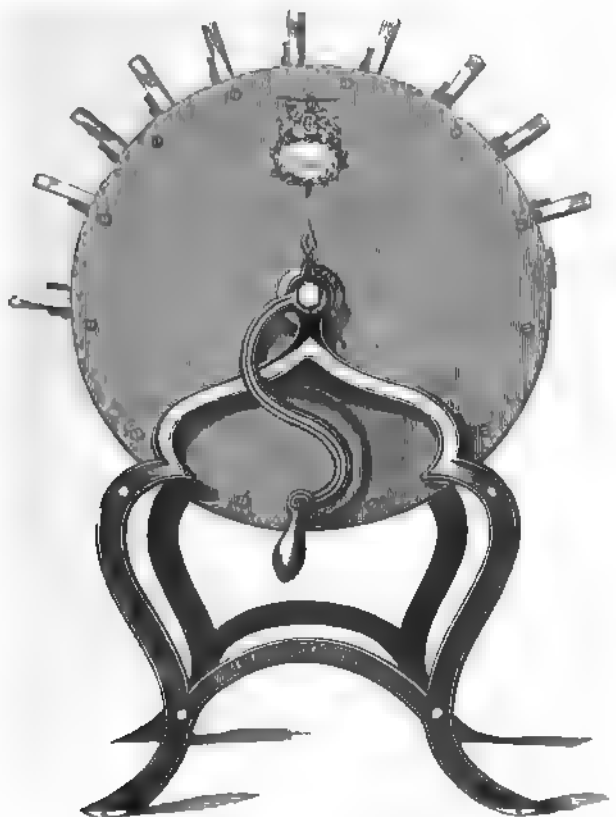


Fig. 2.



Kent's Rotary Knife-cleaning Machine. Fig. 1 Transverse Se
Fig. 2. Perpendicular Section.

Fig. 3.



Kent's Patent Rotatory Knife-cleaning Machine.

Brushes or buffers of the knife machine. Original American knife-cleaner.

Inturating strainers for domestic or manufacturing purposes. Rotary cinder-sifter, for domestic use. Working model of the same.

554 MORETON, J., *New Vauxhall, Wolverhampton*—
Inventor.

A mangling machine.

555 HARRISON, W., *Fisher Street, Birmingham*—
Manufacturer.

Bright and tinned round and oval short-handle frying-pans. Bright round and tinned oval hanging frying-pans. Bright round long-handle frying-pans. Bright round and oval bake-pans.

Havannah sugar-moulds and large moulds for refining sugar, tinned, painted, and coated with "patent glass enamel."

Tinned small mould, for refining sugar.

Sugar bowls and skimmers, tinned and coated with "patent glass enamel."

556 GIDNEY, JEREMIAH WILLIAM, *East Dereham, Norfolk*—
Inventor and Manufacturer.

Models—an improved six-wire strained fence, with rates for parks, pleasure grounds, and agricultural purposes; a portable iron sheepfold, on wheels; and iron entrance gates. Sundry pieces of ornamental castings, for gates, palisading, &c.

Model of a door, fitted with lever spring-drop, to exclude the draught from below the door, where the step or sill is worn away. Invented and registered by Morris Gardiner, of Ashill, Norfolk. Full-size lever spring-drop, for the same purpose.

Model of hemispherical stove grate, with fire-brick back, designed, registered, and manufactured by Messrs. Barwell and Co., of Northampton. Fender for the same.

Model of a green-house, with economical heating apparatus, registered by J. N. Gibbs, Wendling, Norfolk.

Three sets of ornamental gothic hinges for church doors, designed by S. S. Teulon, Esq., and manufactured by the exhibitor.

557 WATTS & HARTON, *61 Shoe Lane, Holborn*—
Manufacturers.

Specimens of pewter articles, quart and pint drinking cups. Melon-shaped moulds for icing puddings. New pattern ice-cream moulds. Warmer and cooler, of improved construction, for confectioners' counter, to keep soups and pastry warm in winter, and to keep ice creams and iced water cold in summer. Oval meat dish. Hot-water dish. Improved hot-water plate and stand. Collection or communion plate. Hot water, butter, and gravy boat, wicker handle.

Music plate, for printing music. Title-plate, for printing title-pages.

Brass castings—various patterns of animals, busts, figures, &c.

559 BAKER, W., *14 Allen Street, Goswell Street*—
Manufacturer.

Awls, bodkins, steels, and other implements, for shoe-makers, carpenters, &c.

560 FARROW, CHARLES, *18 Great Tower Street*—
Manufacturer.

Corking, bottling, bottle-washing, automaton funnel, and other machines used in the management of wines and other liquors.

563 HALE, JAMES, *Walsall*—Manufacturer.

Spring curb hooks for bridle-bits. Steel spring swivels for shot-belts. Powder-flasks and rifle-slings. Spring hooks for dog chains. Pillar chains. Back chains, &c. Fancy dog and parrot chains. Polished steel pole chains for pair-horse carriages. Stirrup-leather buckles, girth buckles, &c. Spring billets for pillar reins, bridles, &c. Plain and spring coskeys for tandem traces. Fancy chain dog collars. Polished steel trace end chains.

565 ROBERTSON, HUGH, *Milngarie, Scotland*—Inventor.

Cutter gauge for cutting a square. Machine for washing yarn. Trap for shooting pigeons. Rat-trap.

566 POPE, WILLIAM, *Bridge Street, Exeter*—Manufacturer.

Felt, finished state; used instead of leather, for pump valves, and for shoeing horses. Same material, but in a different stage of the manufacture; used in polishing marble instead of the lap; and for back collars of carriage wheels, &c.

Furnace for consuming smoke, with apparatus for producing naphtha, if required.

568 M'CLURE, JOHN, *Galloway House, Garlieston, Scotland*—Inventor.

Model of a swing-door, showing four ways of balancing the same, so that it shuts of itself, without the use of springs or pulleys.

570 GREEN, CHARLES, 2 *Portland Street, Brighton*—Inventor.

Machine for cutting bread, for domestic use, in uniform slices of different thicknesses. A letter-box.

571 GRAY, JOHN, *Dunbar, Scotland*—Manufacturer.

Pattern of traps for killing rabbits, &c.

572 ENGLISH, J., *Epping, Essex*—Manufacturer.

Entomological fumigating apparatus, designed to drive lepidopterous insects from their natural habitats; and also to facilitate the capture of entomological specimens. The same apparatus is also useful for fumigating plants, and is constructed to turn with a winch, being enclosed in a mahogany case for convenience of pocket carriage.

573 COLLINGE, CHARLES, & Co., 65 *Bridge Road, Lambeth*—Designers and Manufacturers.

Working models of patent spherical gate hinges and gate fastenings. The patent spherical hinge consists of a ball revolving in a cup socket, both being case-hardened, and is applicable to all kinds of gates and doors. The improved gate fastening consists of several bolts thrown into staples by the action of one key or lever.

Patent spherical and rising hinges. Doors fitted with the rising hinges, rise as they are opened clear of the carpet or mat on the floor, and close by their weight acting on the spiral screw of the hinge.

574 PINDER, W., & SONS, *Sheffield Works, 85 Travis Street, Manchester*—Manufacturers.

Files.—Specimens of doctors in elastic steel, composition, German nickel, tutang or Chinese copper, and cast-steel pin files, used by calico printers.

Files for machine makers.

[The term "doctor," given to a part of a calico-printing machine, represents a long blade of steel, or of some other metal, which is applied to the engraved surface of the copper print-cylinder, for the purpose of removing its superfluous charge of colour. The adherence of the superfluous colour being a great difficulty on the introduction of the machine, accident led the inventor to apply a knife-edge to the revolving cylinder with a successful result.—R. E.]

575 BRADNACK, I. R., *Great Farnmouth*—Inventor.

Pair of summer skates, adapted for a macadamised road, or any firm, level surface.

Model of a door, with an improved fastening. Improved knocker and letter-plate for a door.

576 BURROWS, THOMAS, *Barnsley*—Inventor.

Bed-joint, intended to supersede the use of screws.

577 HEDLEY, G., *Ireland*—Inventor.

Gas-cooking apparatus.

578 LEARWOOD, THOMAS, *Truro*—Inventor.

Screw-driver, of considerable power.

Portable walking-stick stool, made of lance-wood, to imitate cane. Chair, adapted for ladies' schools, cane-seat, and back birch, in imitation of rosewood. Fancy chair, for drawing-room, birch, with willow seat. Windsor chair, for kitchen use; birch, in imitation of mahogany, and French-polished.

579 COOK, THOMAS, *Ann Street, Plumstead*—Inventor and Manufacturer.

House alarm, to be fixed to doors or windows, to prevent them being opened at night without making a loud report. The same, in gardens or shrubberies.

580 ARMSTRONG, JAMES, jun., 10 *Pollen Street, Maddox Street, Regent Street*—Manufacturer.

Dressing and other combs, tortoiseshell and horn cases; metal combs and whisker combs.

581 HUGHES, HESKETH, 72 *Charles Street, City Road*—Inventor.

Patent gauffering machine, dispensing with hand labour.

582 HAYWARD BROTHERS, 196 *Blackfriars Road*—Inventors and Manufacturers.

Sheringham's registered ventilator; made of iron japanned, for the admission of fresh air into a room without draught.

583 LEAVER, JAMES, *Cookham, near Maidenhead*—Designer and Manufacturer.

A corona lucis for lighting a church, the pattern being the leaf and branch of ivy, with the branch made in one piece.

584 HAYNES, JOSEPH, 88 *St. James's Street*—Inventor.

Apparatus for extracting corks, by applying a lever and screw of peculiar construction.

587 KNIGHT, T. W., 33 *Regent Terrace, Widcomb, Bath*—Inventor.

Bolt for folding-doors, which fastens on closing the right-hand door.

591 BISHOPP, Rev. JOHN, M.A., 11 *Canterbury Row, Kennington Road*—Inventor.

Rotary cinder sifter. The cinders are expeditiously sifted, and (without opening the machine) are afterwards made to fall down instantly into the coal scuttle, so that no dust can possibly escape to cause any annoyance.

592 HOCKIN, CHARLES, 38 *Duke Street, Manchester Square*—Part Owner and Agent.

Carson's patent meat preserver, consisting of a syringe or force pump without a valve, which injects fluids into animal substances and preserves them from the centre to the surface; a joint is salted in ten minutes instead of fourteen days; meat can be flavoured as salt meat, and still the gelatinous part be retained.

By injecting a few ounces of brine or syrup into the soft part of a joint, it may be kept many days beyond the usual time.

594 **JENKINSON, JAMES**, 21 *President Street, Goswell Street*—Inventor.

Improved blind roller and spring bracket. The spring is introduced into the bracket instead of the roller, in order to make the apparatus more simple, neat and cheap, and less liable to get out of repair. The roller can be removed from the bracket, and the blind slid into a dove-tail groove. Stove with descending flue.

595 **MOORE, J.**, 38 *Clerkenwell Close*—Proprietor.

Patent lever ventilator for any form of window.

597 **AZULAY, BONDY**, *Rotherhithe*—Inventor.

Hot-water bottle bath; with double sides, and between them a non-conducting substance. Gas-stoves.

A washing-copper and trough, heated by gas; the water keeps hot the whole time of washing, and is regulated at pleasure. Flat-irons heated by gas.

Window-roller bracket spring. The roller may be released without cutting the cord. Should the cord break, the roller cannot jump out of bearing, as there is no slit.

600 **WENHAM LAKE ICE COMPANY**, 164A *Strand*—Manufacturers.

Ice safe or refrigerator, for keeping wine and provisions cool: lined with the patent glass enamel.

Syphon water filter, capable of instant adaptation to any existing cistern or water-butt, invented by Alfred Bird.

[The solid masses of ice brought to England from America, are obtained from freshwater lakes. The Wenham Lake in the State of Massachusetts, is not far from Renton, and is situated in a hilly district. A complete ice-cutting establishment exists at this lake, and when the ice is a foot thick it is cut by a peculiar plough, drawn by a horse. The blocks are cut with an ice-saw, drawn to the ice-store, and for a time kept there. 15,000 or 20,000 tons of ice can be stored at one time in this repository, whence it is despatched by rail to the market. About 400 tons of ice in a day are frequently carried away. The annual consumption is enormous.—R. E.]

601 **KEITH, GEORGE**, 36 *Piccadilly*—Manufacturer.

Ling's patent mahogany ice-safe, for the preservation of all kinds of provisions, icing wines, water, &c.; the same in deal. Ling's patent metal ice-box for hot climates. Gablen's ice-box. Domestic apparatus for making ice-creams. Wine freezers. Apparatus for making ice-creams by the aid of freezing powder. Ice-maker, for freezing a small quantity of water in tubes with the freezing powder, for medical or other purposes. Registered ice-plane.

Coffee or chestnut roaster.

"Magic mirror," which is said to resist the condensation of the breath on its surface in cold weather.

Liquid meter (in action), for measuring water, spirit, or any kind of liquid, adapted for distilleries, water companies, &c.

602 **HOLLAND, THOMAS**, 40 *South Audley Street*—Manufacturer.

Improved brass cock for kitchen boiler.

604 **HELY, ALFRED AUGUSTUS**, 16 *Manchester Buildings, Westminster*—Inventor.

Patent cork-driving apparatus and vent-bottle. The former is applicable to the corking of any description of bottles, but especially to the "vent-bottle," which is simply an ordinary bottle with a small orifice under the rim, through which, on the cork being suddenly compressed into the neck, the quantity of liquid displaced is ejected.

Sliding candle-lamp. A contrivance for preventing candles from guttering, and facilitating the use of a snuffless wick in common tallows.

Chemical vase, showing the application of oil to the disinfection of noxious matter, by confining the effluvium under water, or directing its escape through a tube into the air. Water is poured into a vessel, and a pipe is let down until the water rises about one-third in the pipe. Oil is then poured upon the water to fill the pipe another third. The matter drops through the oil into the water in the tube, where it is freed of any oily particles it may have gathered in its passage through the oil, and finally deposits itself in or upon the water in the body of the vessel.

606 **BENTLEY, W. H.**, *Bedford*—Inventor and Manufacturer.

Garden irrigator, for watering plants and flowers.

Cooking apparatus, for boiling and steaming, and general culinary purposes.

Self-acting chimney-pipe, intended to obviate the inconvenience of smoky chimneys.

Self-acting kitchen-range, upon a new principle. Ramoneur apparatus, for sweeping chimneys without the aid of climbing-boys.

Universal tea-kettle, which "will boil two gallons of water in ten minutes."

Alarm lock for the protection of life and property. Registered stove. Improved coffee-pot. Improved filtering cistern.

607 **DANIELL, J. C.**, *Limpley Stoke, near Bath*—Inventor.

Piece of ordnance, loaded at the breech instead of the muzzle, it can also be loaded and discharged in less than half the time taken to load ordinary guns, and requires only half the powder to each charge.

609 **HUGHES & KIMBER**, 106 & 107 *Shoe Lane, Fleet Street*—Manufacturers.

Copper-plate for line engraving. This plate has been extended three inches by hammering, and is as hard and highly polished as the material will admit.

Steel plate for mezzotinto engraving, prepared with the finest surface, and of even temper throughout. Thin steel plates, similar to this, were first invented by Richard Hughes, in 1822.

[The intention of extending the surface of a copper-plate by hammering, is to condense its molecular structure, as far as that can be accomplished by mechanical means. In this process, a very large amount of latent caloric is developed—it might be almost said to be forced out.—R. E.]

610 **MOREWOOD & ROGERS**, *Steel Yard Wharf, Upper Thames Street*—Inventors and Proprietors.

Specimens of rain-water gutters and heads, and mouldings for architectural purposes, made of the exhibitors' patent galvanized tinned iron. These mouldings, at a small expense, add to the appearance of a building, are free from liability to rust and discolour, and may be painted to resemble stone.

Patent galvanized tinned-iron pipe, for conveying water or gas; its recommendations are economy, cleanliness, and freedom from the bad consequences that frequently attend the use of lead pipes for conveying water.

Samples of patent galvanized tinned iron wire for electric telegraph, fencing, and other purposes.

Samples of patent galvanized tinned-iron chain of various sizes.

Piece of the exhibitors' patent leaded sheet iron; applicable for making baths, water-cans, gas-meters, and most of the purposes to which tin-plate is applied, is much less expensive than that material, and wears better.

611 **MITCHELL, JAMES**, *Stonchaven, Scotland*—Inventor.

Tin-plate pipe-tops. German silver pipe-tops, and sterling silver pipe-tops, with chain and picker. Malleable iron tobacco pipe, invented by the exhibitor.

612 HAMPDEN, JOHN, 448 West Strand—Co Proprietor and Agent

New and improved fire escape, also applicable for a mooring ladder, scaffolding, &c., made entirely of iron.

Williams's temporary rudder, stated to be capable of being shipped at sea in any weather.

Scott's elastic door and gate spring.

Nash's air tight jar for oil, ink, blacking, &c.

Loyse's tea urn. A tea-urn and tea-pot are here comprised in one vessel, each distinct in itself. From the same tap may be drawn tea or water, as required. It is heated by an iron heater, spirit lamp, or gas jet.

Improved China and glass letters for shop fronts, &c.

614 DURHAM, T. D., 16 Tinton Street, New North Road, Islington—Manufacturer.

Registered hot-air funnel kettle for boiling water on a common fire in a few minutes.

615 GRAY, JOHN, 11 Innerleith Row, Edinburgh—Inventor.

Registered gravy dish for separating the liquid fat of roasted or boiled meat from the gravy at table.

616 HANSON, JOHN, Huddersfield—Inventor, Patentee, and Manufacturer.

Samples of patent manufactured lead.

620 SEARS, ROBERT, 2 York Street, Middlesex Hospital—Designer and Manufacturer.

A block tin-plate coffee filterer, with spirit lamp to boil water on the table, it may be used with or without the lamp.

Small cooking apparatus, for chops, steaks, or cheese, with spirit lamp designed to produce a powerful heat.

Tea-kettle to boil water on the table.

621 RIDLEY & EDGER, Vincent Square, Westminster, and St. James's Terrace, Vauxhall Bridge Road—Inventors.

Working model, one quarter of the full size, showing a part of the interior of a house with staircase, having patent safety doors and apparatus attached, by means of which persons cannot enter or leave the house without giving immediate alarm, the apparatus also indicates that part of the house which the persons entered or left. It is applicable to iron chests, bankers' rooms, warehouses, &c., and can be adapted to existing buildings at a moderate cost.

622 TAYLOR, JOSEPH, Waterhampton—Inventor and Manufacturer.

Bramah locks, with guards. Improved balance detector lever locks. Burton's chest and latch till lock. Full warded chest and tumbler locks, &c.

626 CUNNINGHAM, ALBERT ROBERT, Addison Road, Kensington—Inventor

Registered knife-cleaner and sharpener. The leathers are fixed on this board in diagonal lines with intermediate spaces, to secure a constant and equal distribution of emery, and a great amount of friction on the blade of the knife. A steel is fixed diagonally for the purpose of sharpening when required.

627 FARRAR, WILLIAM, Leicester—Inventor and Manufacturer

Zinc fountain, with figure, made by hand, without the aid of casting or stamping.

Improvement for sash windows, to work without lines, pulleys, or weights.

Cylindrical bed-warmer, which can also be used for airing linen, &c.

628 SHAVE, W. J., 74 Watling Street—Manufacturer.

Patent oven, having the heating apparatus within; adapted to domestic, chemical, and shipping purposes; the same, with hot or drying closet.

630 COMMON, JOHN, Melrose, Scotland—Manufacturer. Slide ball cock, capable of standing a great pressure of water. Invented by the exhibitor.

633 BURNET & BELLAMY, Mill Wall, Poplar—Designer and Manufacturers.

Tanks for water, biscuits, oil, and paint.

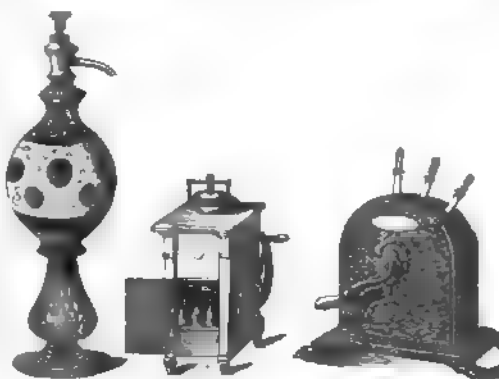
Cistern for house supply, or for holding oil, tar, or spirit.

Barrel for oil, tar, or spirit, with cock, air and water tight.

634 MASTERS, THOMAS, 309 Regent Street—Inventor and Manufacturer

Aerating and soda water machines. Freezing machines and preserving and cooling apparatus. Rotary knife cleaning machines.

The annexed engravings represent the aerating and freezing machines, and also the rotary knife-cleaning machine.



Aerator

Freezer.

Knife-cleaner.

Freezing jugs and cooling decanters, percolators, win coolers, butter-coolers, &c.; new forms of anti-corrosion self-acting taps, cooling and heating apparatus, &c.

636 HART & SONS, 53, 54, & 55 Wych Street, Strand—Manufacturers.

Improved door-knobs and finger plates in brass, chin glass, and fancy woods; the knobs mounted with Pitt patent self-adjusting spindles.

Dr. Arnott's ventilating chimney valves; improved Ironmongery for cottages.

[The ventilating valve of Dr. Arnott is a very simple apparatus. It consists essentially merely of a balance flap protecting an aperture into the shaft of a chimney. The rapid ascent of the heated current of air up the chimney, draws a constant supply of air from the room at that part of an apartment, near the ceiling, where heated and vitiated air is most abundantly present. The valve is adjusted by its balance, so that the entrance of smoke is prevented by its closure.—R. E.]

637 RIDDLE, WILLIAM, East Temple Chambers—Inventor.

1. Self-supplying pencil cases. The reserve is at tip point, and each lead supplies itself by merely turning back the wire in the usual manner.

2. Ever-pointed pencils in cedar and ivory. One object has been to construct a cedar pencil that does not require cutting.

3. Reservoir gold pens, containing a large supply of ink.

4. Inkstands, extending pencil-cases, and penholders.

5. Folio clips, for holding papers. 6. The self-igniting gas burner. 7. The porte-facon, or wine handle.

8. The latch and bolt union, combining the advantage of each in one contrivance. 9. Hat pegs.

10. A marine hand signal lamp, to be used in fog or emergencies at sea. It may be instantaneously lighted

L. M. M. O. 18 to 20, & 25 to 27; O. 9, & P. 3 to 29.

casting, rough-dressed from the mould, being a of a rustic group.

as small Works, of Foreign Design, cast in Iron:—

cushion. Small jug. Monk and pedestal. Pair ars (man and wife). Setter dog. Pointer dog. of wild horses. Lion and boar. Bear, with lamp. copy of the Florence boar. Knight, in armour, on ck. The bear dentist. Group of a knight and a t. Group from the battle of Aboukir. Stag ig. Boar's-head and deer's-head brackets. Bear ;pipes. Bear and young. Pair of goats. Group amazon and a tiger. Gilt vase. Inkstands. Fruit plates. Card-dishes, on pedestals. Pastile-burner. dancers. Female figure, with fish. Statuette of dhal." Pair of candlesticks. Startled stag. Pointer e. Setter dog. "Setting." Setter dog (life size). und (life-size). A copy of the Warwick vase. A goats at play. A sheep and lamb. A pair of grey-at play. A Barbary horse. A pair of small deer, and swan (paper weight). A clock with goat. ettes and Groups of English Design:—"The 'a group of stags; and "The Victory," a group of oth designed and modelled by B. W. Hawkins. tes.—"The Eagle-slayer," "David slinging," and i Indignant," all designed by John Bell. A sta-

tuette of Sir Robert Peel. Henry Ross. A statuette of Thalia, from the one in the British Museum.

Works, life size, in bronze: "The Eagle-slayer," cast in fine bronze and chased, by the Coalbrook Dale Company, from the design and model by John Bell.

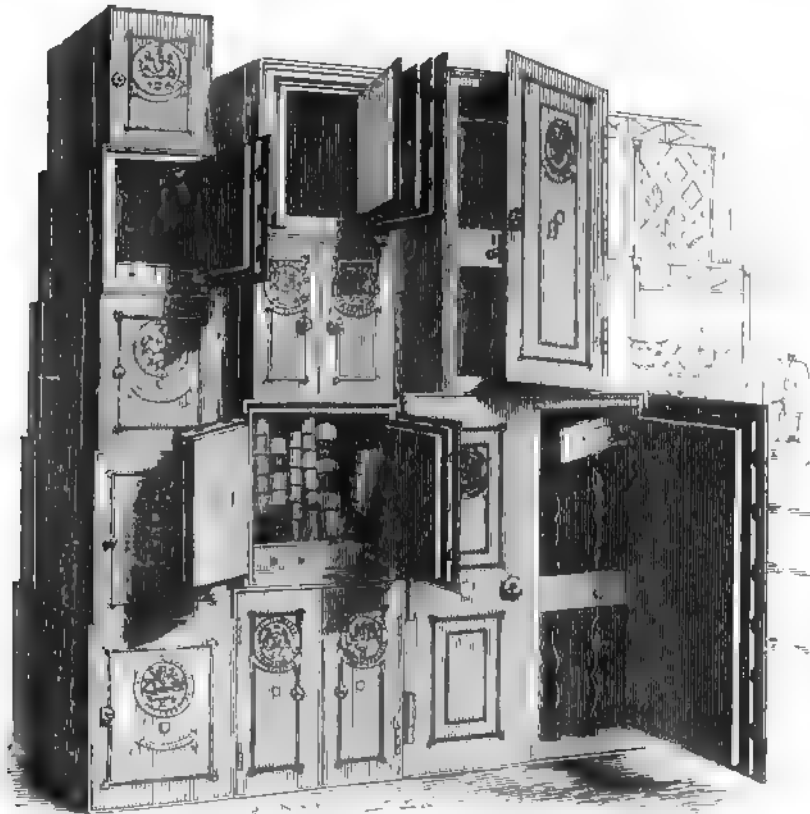
"The arrow of the archer avenges the death of the lamb." For the duplicate in iron, arranged architecturally, see the iron dome of the Coalbrook Dale Company.

"Andromeda," exposed to the sea monster. The pedestal is illustrative of the story; in this, as in the other details, the object was to unite in one design, a statue and ornament. The decoration terminates upwards in a pierced comb, in which lurks a diminutive Cupid, launching a dart at Perseus. Cast in fine bronze, seven feet three inches high, and chased, by the exhibitors, from the design and model by John Bell.

642 MILNER & SON, Liverpool, Manchester, and 47A Moorgate St.—Patentees and Manufacturers.

Group of patent holdfast and fire-resisting safes, of the first class, with outaides of half-inch wrought-iron, lined throughout, with the exhibitors' non-conducting and evaporating fire-resisting chambers. Exhibited in successive stages of manufacture, to show the internal arrangement. The safe is made from 5 cwt. to 3 tons each in weight.

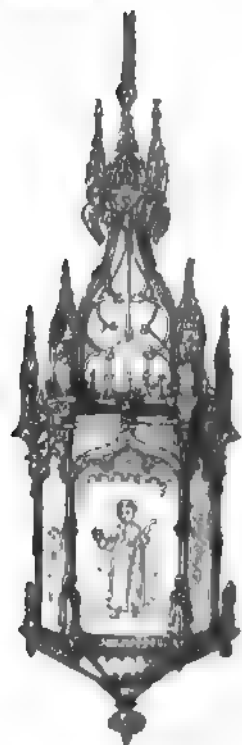
These safes, of different sizes, and applicable to different uses, are shown in the annexed illustration.



Milner & Son's Patent Holdfast and Fire-resisting Safes.

LETT, DAVID, 55 High Holborn—Manufacturer. handellers, for various lights. Etruscan gas lamp. namental Gothic lantern with stained glass panels; hown in the cut on the next page r's ventilating gas chandelier Gas meter, with us attached. r bronze candelabrum, copied from the antique idelabrum is also represented in the next page.

Five-light ornamental stand for gas. Glass and china stands, mounted. Platow's patent automaton coffee urn, designed and executed in silver by Barnard & Son. Steam generator, applicable for cooking, heating water, &c., by gas. Dr. Arnott's self acting ventilator. Gas cooking stove and kettle. Bachelor's cooking apparatus



Hallett's Ornamental Gothic Lantern



Hallett's Antique Bronze Candelabrum.

644 SEDGWICK & TAYLOR, 186 Piccadilly—Designers and Manufacturers.

Glass lustre, with drop work and various coloured glass flowers, after the old Venetian style.

Ornamented metal chandelier, with looking-glass centre, in panels, chased.

Registered ornamental chandelier, for gas, with griffin branches, springing from blue enamelled globe, with imitation candles.

Registered chandelier, with same design, for wax candles.

Pair of wall lights, after the old Venetian style, with coloured glass flowers, &c., for wax candles.

Crystal glass lustre for gas.

Table lamps on Herculean pedestals.

The patent diaphanous reflector, with table lamp.

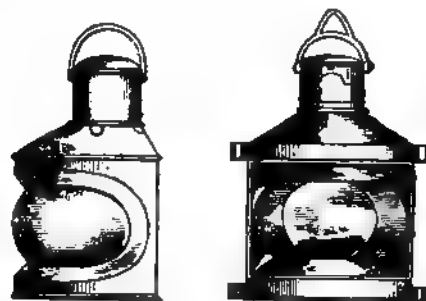
Registered chased candelabra. Tripod metal stand. Various patterns of table glass.

Lantern, with reflectors for lighting the outside of houses.

[A Venetian historian of the 13th century says, that the Government cherished the making of glass as the apple of its eye. A Venetian carrying its secrets to foreign countries was punished by the imprisonment of his relatives, and if possible assassinated. Noble families, without loss of caste might marry the daughters of master glaziers of Murano. Glass beads and emblems of shoes formed a large article of traffic with the East; the manufacture is now in decay at Venice, though beads are still made.—R. E.]

645 MILLER & SONS, 179 Piccadilly, and 370 Oxford Street—Inventors, Manufacturers, and Proprietors.

Patent Admiralty regulation lights: bright light at the foremast head, green light on the starboard side, red light on the port side, to be used when under weigh. The form of these lights may be seen by the annexed cuts.



Miller & Sons' Patent Admiralty Regulation Lights.

A common bright light, to be used by all vessels at anchor. Model of a steam-vessel, showing how these lights are placed. The cut on the opposite page represents a steamer with the regulation lights. It shows the proper position for these lights, in order to obviate the confusion likely to arise from the curving of the rays of light over the bows of the vessel.

The following are the Admiralty Regulations which have been adopted since 1840 by all maritime nations:—

A bright light at the foremast head, green light on the starboard side, red light on the port side—to be used when under weigh. A common bright light, to be used by all vessels at anchor. The green and red lights are so placed at the side of the vessel that the rays of the lamps cannot cross the bows. In this manner it is easy to ascertain the position and the course of the vessel, and to avoid collision with her, since the coloured lights give the most certain indication as to whether she is in the starboard or larboard tack.



Steamer with Miller & Sons Regulation Lights.

The following statement has been published by Capt. Trenchard, F. R. S., which shows statistically the importance of these regulations.

Consequences of collision at sea to British steamers and sailing vessels, 1845 to 1849.

	DAMAGED.			TOTAL.
	Seriously.	Considerably.	Slightly.	
Steam Vessels	9	9	14	296
Sailing Vessels	270	100	603	1,520
				2,816

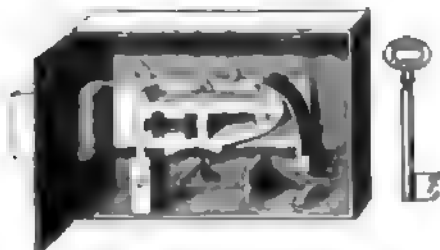
Showing a total of 4,014 cases involving more or less loss of property at sea, apart from losses through bad navigation and stress of weather, but chiefly attributable to want of lights and look-out.

Hand, cabin, and deck lamps, various. Carriage-roof lamp, with an improved reflector, and a tricolour hand lamp. Railway, tail, and side lamps. Engine and buffer lamps. Wheel, searchers', and watergauge lamps. Station platform lamps (registered). Double semaphore lamp, a substitute for two lamps.

Table, bracket, and back lamps. Reading lamps. Gig and dash-iron lamps. Hand and night lamps and lanterns. Pocket, pocket, and reflecting lanterns, for reading at night, and other purposes. Improved stable lamps, for suspending from the ceiling or wall. Wax illuminators. A, of a peculiar construction, having short separate wicks, instead of ordinary cottons.

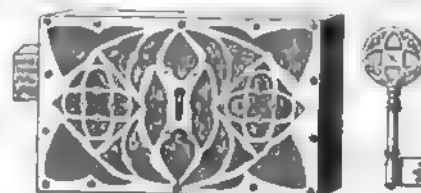
646 Curran & Sox, 57 St. Paul's Churchyard—Inventors, Patentees, and Manufacturers.

Specimens of the exhibitors' patent detector locks and latches, for various purposes. The cut represents the interior of one of these locks and key.



Curran's Patent Detector Lock and Key.

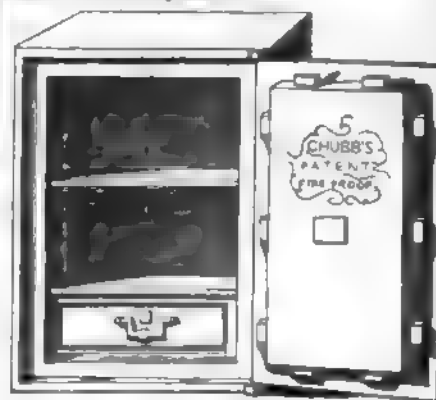
Specimens of Norman, Gothic, and Elizabethan locks, and ornamental steel keys of various styles and patterns. The Gothic lock and key are shown in the annexed cut.



Chubb's Gothic Lock and Key.

Patent quadruple and rim locks.

Patent fire-proof safes, for bankers' use, and model of a patent well safe. The cut shows the form and interior of the fireproof safe.



Chubb's Patent Fireproof Safe.

The case containing the Koh-i-noor diamond. This case, which is represented in the adjoining engraving, contains an arrangement for elevating and depressing the diamond without unlocking. It is considered to be impossible to pick the lock or obtain an entrance into this receptacle.



Chubb's "Koh-i-noor" Diamond Case.

[The locks on this principle, for ordinary purposes, have each six separate and distinct moveable tumblers and a detector. If a surreptitious attempt be made to open any one, immediate notice is given by the detector on the next application of the proper key. The fire-proof safes are made of strong wrought iron, lined with hard steel plates, and the chambers all round are filled with non-conductors of heat.]

647 HAYWOOD, J., & SON, 20 *St. James's Walk*, and *Suffolk Street, Clerkenwell*—Manufacturers.

Locks used by cabinet-makers, builders, &c.; specimens of gilding and engraving applicable to every description of fancy brass furniture.

648 MAYO & BATES, *Wolverhampton*—Manufacturers.

Door-lock keys in different stages of manufacture.

[Several manufacturers are exclusively occupied in making keys, in their rough state. The majority are produced by swages or points; superior qualities are from time to time cast of malleable iron and annealed. They are purchased by the lock-makers, and cut to suit the several wards in the locks which they are intended for.—W. C. A.]

649 THE PATENT POINTED SCREW COMPANY, *Wolverhampton*—Manufacturers.

Patent-pointed screws, cast out of malleable iron, which can be driven into wood, without boring holes.

[The peculiarity of these screws is in their mode of production. Other screws are formed from iron wire, the head being forced up, and the screw cut in a lathe in use for the purpose; these are cast in sand, and are singular, from their being so, and from the comparative sharpness in the threads, though they are somewhat inferior to those cut by ordinary method.—W. C. A.]

649A HUFFER, JOHN, 20 *Wilderness Row, Clerkenwell*—Inventor and Manufacturer.

Detector chest lock; a false key is retained in the lock till the proper key is brought to relieve it.

Chest lock with secret action. Spring latch, padlock, locks for chests, desks, trunks, portfolios, drawers, and carpet bags.

650 BIGFORD, H., *Wolverhampton*—Inventor and Manufacturer.

Improved detector-lock.

650A FOSTER, RICHARD, 1 *York Place, St. George's East*—Inventor.

Self-acting detector lock, applicable to safes, doors, &c. A person attempting to open this lock by a false key, cannot withdraw the key without injury.

651 GOLLOP, JOHN, *Wellington Foundry, Charles Street, City Road*—Manufacturer.

Patent rising and non-rising spring, swing and other hinges for doors or gates.

652 GERISH, FRANCIS WILLIAM, *East Road, City Road*—Inventor and Manufacturer.

A safety lock, of which it is believed that the key cannot be copied.

A lock of simple and cheap construction.

A simple and cheap hinge, with spring, to close a door one or both ways.

653 BRAMAH & Co., 124 *Piccadilly*—Inventors and Manufacturers.

Brass case box of wards, showing the security of the locks, invented by the exhibitors.

Brass case-lock, exhibiting the number of changes these locks will admit of. The changes are computed at four

hundred and seventy-nine millions one thousand six hundred.

Copper box of wards, on steel plate, for iron door.

Four-bolt brass case chest lock. Large brass padlock. Iron case two-sided door lock.

Brass case book, drawer, spring-box, and portfolio locks.

Brass barrel padlock. Prison-door lock. Two-sided street-door lock. Large iron padlock.

Brass case desk, cupboard, and chest locks. Three-bolt portfolio lock. Brass case padlocks. Link plate cupboard lock.

Narrow drawer lock. Brass case closet lock. Thin spring box lock.

Box, cut cupboard, book, and portmanteau locks.

Very fine ornamental iron casting.

654 GIBBONS, JAMES, jun., *Wolverhampton*—Manufacturer.

Improved locks, for doors, drawers, park gates, &c., in various styles.

655 CARPENTER & TILDESLEY, *Willenhall, near Wolverhampton*—Manufacturers.

Carpenter and Co.'s, Sanders', Tildesley's, and Baillies' patent locks. Rock's patent Gothic case locks. Curry-combs, various patterns. Elastic horse-scrappers.

[The most ancient locks are those which have been in use in Egypt for upwards of 4,000 years, the similarity of which with those of the Faroe Islands is singular. The most ancient lock was a peg lock; its outline may be seen figured among the hieroglyphic representations on Egyptian tombs and temples.—W. C. A.]

Registered, and other latches. Norfolk thumb mortise. New designs in iron and brass padlocks. Door-bolts. Mortice sash locks and latches.

[Wolverhampton is the grand centre for the manufacture of locks, which gives employment to the vast population thickly congregated in the small towns of Bilston, Bloxwich, Willenhall, Melsall, and other hamlets scattered around; in addition to this, it supports no small number of persons, known as middle-men, and factors, who buy and stock the locks of all kinds brought to them by the smaller makers.—W. C. A.]

656 WHITLEY, JOHN, *Ashton, near Warrington*—Manufacturer.

Case of wrought-iron hinges, of various descriptions.

657 CLARK & Co., *Shakespeare Foundry, Wolverhampton*—Patentees and Manufacturers.

Patent enamelled ware sauce-pans, stew-pans, pots, kettles, frying-pans, gridirons, digesters, hand-basins, bowls, bread-pans, furnace-boilers, spittoons, stable-buckets, watercloset-pans, &c.

Tables, with enamelled tops, imitation of marble, and tinned; patent cast-iron hinges, coffee-mill, and crimping-machine.

658 OSMOND, GEORGE, 19 *Somers Place East, New Road, St. Pancras*—Inventor.

Improved fittings for roller-blinds, maps, &c. Lock or spring latch, with bit inside the pipe of key instead of outside. Door-bolt, extremely difficult to unfasten by those unacquainted with its action. Self-acting bolts, for double doors, made so as not to admit of locking one door without bolting the other. Sash-fastener, similar to a barrel-bolt, and having a spring, which, when in use, prevents the sashes making a noise.

Patent centres for swing looking-glasses, a substitute for knobs on the outside of the standard; they are made in two parts, one of which is fixed on the edge of the glass frame, and the other on the standard, so that when the glass is put into its place between the standards, and a small lever pressed down, it is securely fixed between

the standards; the centres will sustain the glass in any position. Manufactured at Birmingham by Messrs. Charlton Brothers.

659 **PARKES, HENRY WILLIAM, 110 Strand—**
Manufacturer.

Large brass padlock with 18 guards, on a new principle.

660 **HARLEY, G., Warwick Street, Wolverhampton—**
Manufacturer.

Patent detector locks, for trunks, ledgers, drawers, carpet bags, &c.

661 **CARTWRIGHT, DANIEL, Leek—Proprietor.**

Alarm lock; on an attempt being made to pick it, a bell rings, and when the bolt is shot a pistol is fired. By moving the key in a certain direction it will not pass, and the lock cannot be injured by turning the key the wrong way.

663 **AUBIN, C., Wolverhampton—Inventor and**
Manufacturer.

Specimens to illustrate the rise and progress of the art of making locks, containing forty-four different movements by the most celebrated inventors in the lock trade.

Sections of locks. Letter-bag locks and ledger-locks, ornamented on a new plan.

Lock and key so small as to be contained within half of a hemp-seed husk; and small materials for locks, by two boys of fourteen, Henry and Frederick Aubin.

Secure locks and latches on various principles, and an original method of ornamenting tin goods and panes of glass.

664 **YATES, HENRY, St. John's Square, Wolverhampton—**
Inventor and Manufacturer.

Locks for trunks, drawers, &c.

665 **LEA, WILLIAM & JOHN, Wolverhampton—**
Manufacturers.

Fasteners for sashes. Alarm bells for doors or shutters. Stays for French casements.

Gothic hinge, handle and escutcheon. Ornamental handles for locks, &c.

Brass bell handles. Latches for closet doors and shutters. Brass cabinet locks. Registered double-action rack bolts and lock, suitable for French casements, cupboards and wardrobes; also for hall, warehouse, and doors, either single or folding. Model showing the registered bolt. Night latches.

667 **WHITEHOUSE, CORNELIUS, & Co., Wolverhampton**
—Inventors and Manufacturers.

Tubes and fittings for steam, gas, and water.

Piece of amalgamated Swedish iron, for gun-barrels.

[The exhibited tube is deserving of notice, as the first which was produced, and welded without the aid of internal support. Its manufacture may be thus described:—Iron of the proper thickness is cut into strips, turned up until the edges nearly meet; in this condition, the tube is introduced into a muffle, and when sufficiently heated is welded by passing through a pair of rolls which are placed immediately in front of the heating apparatus. —W. C. A.]

668 **WINDLE & BLYTH, Walsall—Patentees and**
Manufacturers.

Model of Strutt's patent door lock, with glass front to show the internal mechanism. Small model of the lock showing the manner in which the quadrants can be changed, and a new key fitted, so as to render a lost one useless. Cabinet or drawer lock, with springs on the quadrants, and padlocks. Registered locks for drawers, &c.

Finished steel pocket corkscrews, with various useful instruments. Steel phial screws.

Patent compensating steel pens, of large barrel shape. Various steel pens.

Patent penholder. This penholder, which is fitted with springs upon which the fingers rest, is intended to give the feeling of elasticity to the person using the steel pen which it carries. It is shown in the annexed cut.



Windle and Blyth's Patent Penholder.

668A **TUCKER, W. H., Taunton.**

A double-action detector lock, that can only be opened by its own distinctive key.

669 **MORETON & LANGLEY, 22 Bush Lane, City, and**
Wolverhampton—Proprietors.

General hardware, for building and household purposes, including locks, and other articles, as prepared for home, colonial, and foreign markets, with imitations of Spanish, Portuguese, and other foreign goods.

[It not unfrequently occurs that the rude articles fabricated by native workmen are transferred to the English manufacturers, to be copied and sold to the inhabitants of the countries in which the originals were produced. —W. C. A.]

670 **WALTERS, BENJAMIN & PHILIP, 100 North Street,**
Wolverhampton—Manufacturers.

Patent locks for furniture, doors, &c.

671 **PEARCE, W., 50 High Street, Dumfries, Scotland—**
Inventor.

Safety-lock. The construction of the fixed wards renders it impossible to introduce a picklock or skeleton key. Two floating wards which extend toward the centre of the fixed wards, are attached to prevent a picklock from being passed round the edge and circumference of the fixed wards. The main bolt has three protecting levers, which are alternately acted upon by the key. The upper level has a brass bar upon the escape slot. The main bolt has three projections to the front edge of the lock; and there is a second bolt, thrown by the same key with two projections betwixt the two hinges, preventing any dependence on the hinges.

672 **MITCHELL, JOHN, Redruth, Cornwall—Inventor.**

Improved pistol. Newly-invented safe lock.

673 LEWIS, GEORGE, *High Cross Street, Leicester*—
Inventor and Manufacturer.

Lock with newly-invented circular levers and self-dividing bitted keys—which precludes the picking of the lock, or any improper use of an impression from the key.

674 HORTON, AMOS, *Ashburton, Devon*—Inventor.

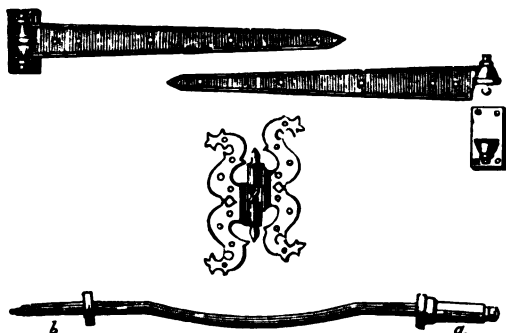
Safety-locks on a new principle, applicable for all kinds of doors, dock gates, &c.

675 DOWNS, WILLIAM, *Long Melford, near Sudbury, Suffolk*—
Manufacturer and Inventor.

Improved twelve-bolt lock, adapted for plate-chests, banking-houses, &c. The lock is fastened on the centre of a door, three bolts shooting each way. After the key is withdrawn, when locked, the interior is secured by springs and rising bolts, to prevent its being picked.

676 THRUPP, H. J., *5 George Street, Grosvenor Square*—
Manufacturer.

A variety of hinges of different patterns. These are rising hinges, and are constructed on Collinge's patent. The cut represents a simple and an ornamental form, with the ball and socket joint of the hinge.



Thrupp's Patent Collinge Hinges and Axle.

Axles upon Collinge's patent. The cut shows this axle at *a* with the collar on, and at *b* with the same removed.

676A GREENFIELD, J., sen., *10 Broad Street, Golden Square*—Inventor and Manufacturer.

Model of door with anti-friction lock and latch, and double secure bolt, to cause the door to shut with little friction and noise.

677 BOULTER, BENJAMIN, *Hull*—Inventor.

New back-fastener for window-shutters, in various forms.

678 BARNWELL, T., & SON, *46 Bishop Street, Dublin*—
Manufacturers.

Wrought-iron double-cased safe, with two drawers, and double doors with secret lock, which cannot be opened by the key, unless the secret be known.

Ornamental hall-door lock. Secret brass desk lock. Iron-rim lock, for prisons, &c.

679 WISSON, RICHARD, *5 Coburg Street*—Inventor
and Maker.

Secret drawn lock, which, unless its internal arrangement be known, cannot be opened with the key. Padlock, with key. Secret padlock, like the drawn lock, to act with dial hands.

680 BOOBYER, JOSEPH HURST, *14 Stanhope Street, Clare Market*—Manufacturer.

External and internal Venetian ventilators.

Rim locks, in or-molu cases. Bolt, richly chased in or-molu. Three-bolt mortice and rim locks. Dead locks.

Bright boxes of wards and keys, with a variety of other locks, fastenings, &c.

681 BAMBER, JOHN, & SON, *27 Wood St., Westminster*—
Inventors and Manufacturers

Improved mortice night bolt, for bed, dressing, and bath rooms, to enable persons in bed, or in a bath, to fasten and unfasten the door.

682 TAYLOR, J., & SON, *Loughborough, Leicestershire*—
Manufacturers.

Two bells, with hangings and framework, possessing tones as melodious as single notes, and also attunable with the greatest accuracy to any extent of scale required. The largest is 4 ft. 2½ in. diameter; note, E flat; weight, 21 cwt. 2 qrs. The smallest 2 ft. 6½ in.; note, E flat, octave higher than the large one; weighs 6 cwt.

Hangings for the bells, constructed upon an entirely new invention; the gudgeons of the large bell being fitted in a cast-iron bed.

Plan of cast-iron feaming, far superior in respect to the whole practice of bell-hanging. The brass steps can be adjusted with precision, and will not vary as given to do when in wood.

683 MURPHY, JOHN, *15 Thomas Street, Dublin*—
Manufacturer.

Two church bells, weighing respectively about 28 cwt. and 7 cwt.. They answer to the first and last in a peal of eight bells, and in bell-music are called the treble and the tenor of the peal, both are what is technically called "maiden bells," that is, cast in tune from the furnace without any artificial tuning or chipping. They afterwards form a perfect octave, the note being D.

[Bells were anciently called Nola and Campanæ, from their invention by Paulinus, bishop of Nola, in Campania, about A.D. 400. In 610, a French army was frightened away from the siege of Sens by the ringing of St. Stephen's church bells. The ringing of changes is peculiarly English, but the date of their origin is not ascertained; some of the most celebrated peals were invented by one Patrick, a barometer-maker, 1726. The peals of many churches, including those of St. Dunstan's-in-the-East, St. Bride's, and St. Martin's-in-the-Fields, were cast by Abraham Rudhall, of Gloucester, 1684.—H. E. D.]

684 MEARS, C. & G., *267 Whitechapel Road*—
Manufacturers.

Hemispherical bell, five feet in diameter, producing a deeper tone from the same quantity of metal than bells of the ordinary shape.

685 SOBEY, WILLIAM R., *Queen Street, Exeter*—
Manufacturer.

Silver gravy, table, dessert, tea and other spoons; knives and forks, sugar-sifters, sugar-tongs, &c. Model of machine and dies.

686 FEATHAM, MILLER, & SAYER, *9 Clifford Street, Bond Street*—Designers and Manufacturers.

A variety of fire grates, stoves, fenders, &c.

Locks, keys, finger-plates, door-handles, scrapers, and knockers; bell levers, fire-irons, &c.

Specimens of wrought-iron gate-work and cast-iron railings, sundry castings.

687 PERRY & Co., *Red Lion Square*—Inventors.
Various specimens of steel pens.

688 ALDRIDGE, JAMES MAJOR, *20 Nelson Street, City Road*—Inventor.

Double-action spring centre and top pivot, showing a portion of a door fixed in shoe, with the spring as fixed in the floor; adapted for doors of any dimension, and such as open both ways; executed in metal, having steel rollers, and case-hardened eccentric.

L. M. N. O. 18 to 20, & 25 to 27; O. 9, & P. 3 to 29.

RODGERS, JOSEPH, & SONS, Sheffield—
Manufacturers.

an's knife, containing eighty blades and other te, ornamented with views of different cities and acts, the handle, 12 inches long, made of pearl, carved with a boar-hunt on one side, and of the stag on the other, from designs by

an's knife with mother-of-pearl handle, containing six blades and other instruments, and is only ters of an inch long.

a of cutlery in mother-of-pearl, containing n and other instruments.

knife and fork, with ivory handles, 58 inches same 1½ inch long.

scissors, 44 inches long, with ornamental gilt the blades etched with different views.

re scissors, complete, which do not weigh half

razor, with cocoa-wood handle, the blade in a view of Arundel Castle.

ns of cutlery, carved in mother-of-pearl, containing 10 blades, and a timepiece in the centre dessert, and carving-knives and forks, with various materials and designs, complete.

or fruit-knives and forks, with plated and silver

ed pine-carvers, with plated and silver blades, n cases.

ves and forks, ornamented in plated metal and ed in cases.

ed and other bread-knives, with plain and od and ivory handles.

ns of pen and pocket-knives of every describing paper and desk or office-knives.

nade for the American market; and for hunting, fishing, deer-stalking, &c.

ns of American bowie-knives, Spanish knives, c.

for culinary purposes, as meat, oyster, onion, butter, and cheese-knives.

used in various trades, as butchers, shoemakers, sinters, gardeners, farmers, &c.

ns of scissors of every variety.

of various descriptions, including some with horn, ornamented with gold by a new process.

.hreaders, by means of which elderly and short-ns may thread small needles with ease.

.hines, for making pens at one stroke ns, showing the several stages of manufacture erent articles, from the raw material to the ods.

d has long been celebrated for its cutlery; so 1296, the town was noted for its iron manu- for falchion heads, arrow piles;" and Chaucer

as the locality, by introducing one of his cha-being in possession of a "Shefeld thwytle."

nanufacture of cutlery three kinds of steel are common, shear, and cast steel. Shear steel is

used for table-knives, scythe, and edge tools. steel, which is susceptible of a fine polish, pen-

sors, razors, &c., are made.

ives are thus forged. Two men are engaged in on The uniform size of the thick part which

the handle is produced by swages; the blade d by being plunged into cold water; it is

ught back to a blue colour," and is then in a to be ground.

e forged out of steel, the tang and shank being rmed; a portion is left to form the prongs

flattened, and these then by dies which work), a blow from which impresses the prongs,

little superfluous metal between, which is re-cutting out at a press, they are then hardened

red.

Penknives are forged by a single hand: the blade is first drawn out; a portion is left at the cutting off to form the part which is operated upon by the spring, as also to assist in holding when undergoing the grinding process; the small nail mark is given by a chisel; they are hardened in cold water, and tempered on an iron plate.—W. C. A.]

691 MOTTRAM & HAWKINS, 15 Carr Lane, Sheffield—
Manufacturers.

An assortment of shoe, butchers', cooks', weavers', bread, palette, putty, glaziers', and farmers' knives, &c.

691A PERRY, R., & SON, Temple Street, Wolverhampton—
Manufacturers.

Jelly moulds, assorted patterns; allblaze, steak, and fish dishes; soup tureen; dish-covers; hash dishes and frames; kettles and stands; tea-kettles; coffee machines, pots, and filterers; tea-pots; chocolate pot and mill; carriage, foot, and stomach warmers; cheese toasters; egg poachers; saucepans; egg codlens; water boilers; wine strainer and muller, flour and pepper boxes; soup ladle; slicers; baster; fish knife; large bowl; vegetable dish; gravy strainer; baking dishes, sandwich boxes; botanical boxes; nursery lamps; spittoons, sugar boxes; canisters; hot-water and beer jugs; lamps and lanterns; wash-hand basins and jugs; inkstands; almanack case; knife, spoon, and cheese trays; card racks; date cases; spice boxes; toast racks; tea caddies; bread and cake baskets; envelope and paper box; tea trays, &c.

692 LORRIN, JOSIAH, 68 Basinghall Street—
Inventor.

Patent egg-beater.

693 LEE, GEORGE, 9½ Church Street, Paddington—Inventor
and Manufacturer.

Spring-shank self-adjusting button.

Embossing iron, a new mode of applying heat to finish manufactured woollens, linens, cottons, silks, satins, velvets, &c.

694 KNIGHT & FOSTER, 5 Eastcheap—Inventors.

Steel pens, of various designs, in boxes.

Bank of England pens. Swan pens.

Correspondence pens. Anti-corrosive pens.

695 BARRON, FRANCIS, & SON, 436 West Strand -
Proprietors

A variety of locks for doors, drawers, safes, &c., on various principles. Fancy keys.

696 BRITTEN, JOHN, 28 Alceston Street, Birmingham—
Inventor.

Improved range, combining the advantages of the ordinary close range and oven grate, with facilities for roasting, baking, and stewing.

Sectional model of the improved range, with description appended.

Small model of a meat-hastener, for roasting two or more joints, at one time, before a narrow fire.

An ash-guard, for preventing the ashes from falling into the dripping pan.

A steam kettle, with description appended

An apparatus, which, used in connection with the improved range, is said to convert hard water into soft.

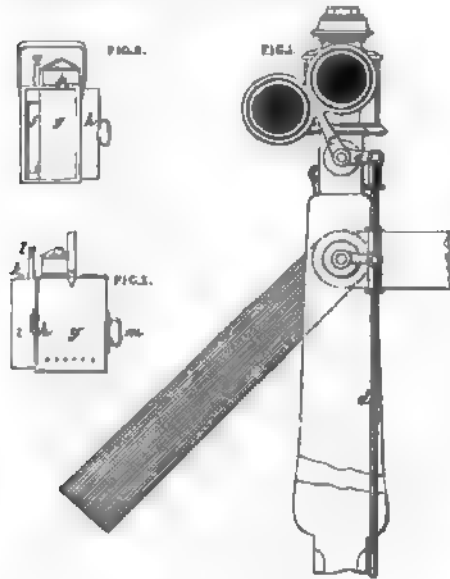
A vertical roasting jack, simple of construction. A slight rotary impulse from the hand about once an hour, is sufficient to work it.

An improved door-fastening, in which the latch-bolt is liberated by simply pulling the handle on one side of the door, or pushing it on the other.

The Stanhope door-spring. The same apparatus in brass, with the case partially removed, to show its action

697 BOAKE, J. F., 11 & 12 Wellington Quay, Dublin—
Inventor.

Model of signal post, as adopted by the Great Southern and Western Railway Company, Ireland.



Boake's Irish Railway Signal Post.

Fig. 1, represents a signal post on the Great Southern and Western Railway, Ireland, after having been altered from one of the previous construction, by removing the crown wheels, brackets, &c., and adding a few feet to the vertical working rod, and the coloured glass and its fittings, one of the lamps, somewhat altered, being placed on the top, and the other dispensed with; by this arrangement all requisite signals are given with one lamp only, which being itself motionless, is less liable to accident or disturbance of the light than turned round. Thus one half of the expenses of oil and wick, and more than one half of that of repairs, glass, &c., is saved. *a* and *b*, two circular discs of green and red glass which are connected with the upright rod *d* by the crank *c*, so as to have motion simultaneous with that of the index arm, which is worked in the usual manner by the handle below.

Figs. 2 and 3, lighting-case, in which the burner of the lamp is placed to protect it from being extinguished by the weather while being carried and placed in the lantern. The lamp partly shown at *f* is placed (when lighted) in the case *c*, the slide *k* (which is represented partly withdrawn) is closed, and the whole being carried to the top of the post, the nose of the case *i* is placed opposite the door of the lantern, and, being pushed forward, is made to enter until the spring latch *h* is made to catch, which holds the case in its place firmly, while the lamp *f*, being pushed forward by its handle *m*, is guided into its proper place in the lantern, the spring latch *h* is then liberated by depressing *l*, the empty case detached, the door of the lantern is closed.

Signal lantern, with improved burner.

Lighting case, for introducing the lamp into the lantern in high winds.

Table lamps, with pillars made of bog oak.

Two hand-signal lamps, the one with white and red glass for railway guards, and the other having white, green, and red glass for policemen, &c., on railways.

The advantages of lamps thus constructed are greater certainty and quickness in giving signals, better light, security from accidents or derangement, and greater facility for repairing or glazing than those of the ordinary sort. Registered.

698 COTTAM & HALLEN, 2 Winsley Street—Inventors and Manufacturers.

Iron gates suitable for a park entrance. An attempt to imitate the ancient wrought iron gates at small cost, by combining wrought and cast iron.

Designs in iron for a staircase railing, &c.

700 HARDMAN, JOHN, & Co., Great Charles Street, Birmingham—Manufacturers.

Wrought-iron grate, with brass and fire-irons; the same, mounted with brass; patterns of furniture for doors, cabinets, wardrobes, &c., in wrought-iron and brass. Various articles in brass and metal, for domestic and ornamental purposes. Casket of jewellery, consisting of girdle, brooches, crosses, earrings, &c.

[Much of the older wrought-iron work is highly interesting. Twisted specimens are made by twisting the iron round when in a heated state; complex scrolls, flowers, &c., are made in portions, and fitted together. —W. C. A.]

700A LLOYD & SUMMERFIELD, Birmingham—Manufacturers.

Chandeliers, candelabra, lamps, &c.

701 WALTON, F., Old Hall, Wolverhampton—Manufacturer.

Papier maché trays, with views of Windsor Castle, Holyrood, and Glenguriff; the Seasons, and scenes from Retzsch's "Outlines of Faust," with various ornaments. Louis Quatorze ornaments and figures, after Watteau. Shell and sea-weed border, with marine views, &c.

Papier maché tea-table, tazza, cabinet, and vases, inlaid and ornamented. Watteau coal vase, and Stafford scoop.

Patent enamelled foot-bath, toilet-pail and can, printed in colours.

Block-tin dish-covers. Kettles and stands, bronzed.

Patent enamelled sponging and milk pans.

[The application of enamel coating to toilet services is but of recent date, and is a great improvement over the ordinary painting. Such wares are ornamented by the transfer process, viz., by printing from copper plates or rollers on paper, and then transferring the same to the utensil to be adorned (in the same manner as earthenware in the biscuit state is ornamented). —W. C. A.]

702 HANSON, GEORGE, Huddersfield—Inventor.

Dry gas-meter. Water-closet. Four cocks, patent, for water or other fluid.

703 NUNN, ALICIA, 2A Welbeck Street, Cavendish Square—Manufacturer.

New method and apparatus for warming several apartments from an ordinary domestic fire, and ventilating. Warming railway and private carriages, halls, conservatories, warehouses, shops, ships' cabins, &c., without fire therein.

Rotary washing, rinsing, wringing, and steaming machine, for clothes and other textile fabrics, dispensing with boiling coppers, tubs or pails, capable of washing fifty dozen of clothes a day, without tear or wear of fabrics.

Variable apparatus for washing, rinsing, wringing, mangling, and ironing, in one machine.

Apparatus for drying and airing clothes and fabrics.

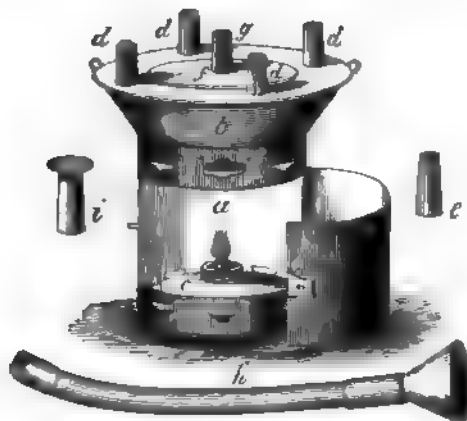
705 THOMPSON, T. H., C.E., 23 Parliament Street, Westminster—Patentee.

Specimens of ball valves, which cannot become fixed so as to produce either a flood or a deficiency of water. The perpendicular principle with compensating valve inside, fits them for action under any pressure. They are made of all shapes and sizes to suit various situations, with the inlets at the top, bottom, side, and through, or with flanges.

Sewer trap. It is complete with or without water, and it cannot gape on account of a self-acting weighted latch, which retains the pan in the closest position till the requisite weight has accumulated, when it instantaneously drops, discharges its contents, and as quickly closes. The pan closes against a ring of vulcanized India-rubber, which forms an air-tight joint, at all times.

754 **CULVERWELL, WILLIAM**, 16 Charlotte Street, Blackfriars Road—Inventor.

Registered portable domestic vapour bath; it consists of a receptacle for water or any medicated fluid, which is heated by a spirit lamp; when hot, the vapour escapes from the sides of several little tubes with flat expanded tops, by means of which it is equally distributed, instead of passing up in a single jet; there is also an elastic tube which may be fixed to one of the flues in the top of the bath, the others being closed, by means of which vapour can be applied locally. The annexed cut represents this contrivance.



Culverwell's Portable Domestic Vapour Bath.

a, the case; *b*, the reservoir (or receptacle) for containing water or any medicated fluid; *c*, the lamp by which it is heated; *d d d d*, the flues through which the vapour rises; *e*, caps for placing on the flues in order that the vapour may be more quickly generated; *f*, the lid or cover; *g*, a flue to which *h*, an elastic tube, can be fixed, by means of which vapours may be applied locally; *i*, tubes with flat-expanded tops, by means of which the vapour can be more equally disseminated.

755 **JEFTCOAT, F. L.**, 26 Strand—Inventor and Manufacturer.

Improved bedsteads and bed for invalids, &c. Apparatus for heating laundry irons.

792 **MAUND, EDWIN**, 370 Oxford Street—Proprietor.

Cast-iron vase stove, admitting unobstructed vertical radiation; smoke descending.

793 **MURRAY, WILLIAM**, 20 John Street, Adelphi—Inventor and Manufacturer.

Self-cleansing tubular filter.

Compensating ball for ball taps, with tap complete.

794 **LANE, W. R.**, 226 Strand—Inventor.

Economic percolator, or improved registered coffee-pot.

795 **MARRIOT, WILLIAM**, 89 Fleet Street—Manufacturer.

Platform weighing machine, with the principle of the dial weighing machine attached, showing at the same moment the weights of various European countries. Dial weighing machine with jointed iron scale and compound lever bracket, as used at railway stations. Dial weighing machine, with hooks for agricultural purposes,

and with copper scale for domestic use. Machine with chair for weighing persons.

Domestic telegraph for communicating between rooms or houses.

Dynamometer for ascertaining the draught of a plough, carriage, or horse.

Mileometer for measuring distances from 1 mile to 1,000 miles.

Spring roasting-jack.

Machine for showing the muscular power of man in the operation of striking, lifting, or pushing.

796 **LOXLEY, E. T.**, 44 Gerrard Street, Islington—Inventor.

Registered portable crane shower-bath, combining bath and drying-room.

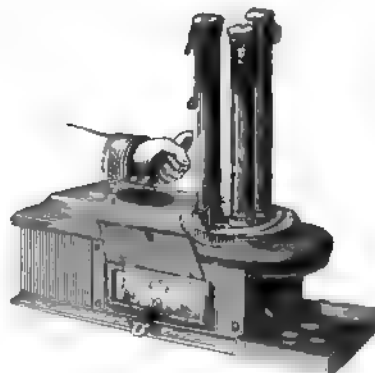
797 **DIXON, J., & SONS**, Sheffield—Manufacturers.

Powder and pistol flasks, shot pouches, drinking flasks, &c., in precious and other metals.

798 **WARNER, JOHN, & SONS**, 8 Crescent, Jewin Street—Manufacturers, Inventors, and Patentees.

Cocks for steam, water, and gas, of various patterns and sizes. Sluice-cocks and valves for the same purposes.

Check indicator, for registering and delivering checks at the entrance of public buildings, &c.



Warner & Sons' Patent Check Indicator.

Registered and patented glass ventilating bricks and windows, for hospitals, factories, dairies, &c.

A set of imperial standard weights and measures, from 1 bushel to $\frac{1}{4}$ a gill, and from 56 lb. to $\frac{1}{4}$ oz. Imperial yard measure. A set of weights and measures adjusted to the proposed decimal system. A set of wine measures.

Bronzed and electro-plated tea-urns and coffee-pots of novel patterns.

Various lamps for burning camphine, common oil, sperm oil, and Palmer's candles. Fancy candlesticks.

Patent counter beer and cider engines. Garden syringes.

Model japanned copper bath, with three way cock, for the supply of hot and cold water, and copper boiler for the same.

A set of stewpans, saucepans, cutlet, omelet, and frying pans.

Bain-Marie pan and fittings. Stock pot. Turbot-kettle.

Fish kettles; brass grog kettles; kettles and stands.

A set of 15 musical hand bells, &c.

A set of 66 musical hand-bells, set to the chromatic scale from F in the bass to F in the treble clef.

Ship water-closet, self-supplying pan.

Water-closet, with double-action pump, requiring no cistern above. India-rubber valve closet.

Patent ship closet, capable of working below the level of the sea.

Patent pan closet, requiring no cistern or valve apparatus. Jennings' patent pan closet. The above articles are mostly the patent inventions of the exhibitors, and are manufactured at their establishment.

799 WHEELER, C., *Birmingham*—Manufacturer.
Specimens of pearl buttons.

800 DE LA FONS, JOHN PALMER, 13 *Carlton Hill, St. John's Wood*—Inventor and Patentee.
A lock, with a bolt that links into the striking-plate, which can be easily changed every day to prevent its being picked. Smaller lock.

Model, representing a room with invisible fastenings, for security against danger.

A sash-fastener, which draws the sashes together, to prevent them from rattling, and locks them at the same time. Model, showing the application and arrangement of the bolts. Novel mode of protection for bedroom or other doors, adapted for persons living in secluded situations.

801 JONES, J., & Co., *Sheffield*—Manufacturers.

Rust preventive composition. Samples of steel goods which have been exposed to the weather, the bright parts having been preserved with the composition.

802 ROBERTSON, CARR. & STEEL, *Chantry Works, Sheffield*—Manufacturers.

Ornamental cast-iron mantelpiece, white and gilt, with burnished steel grate, the fire-brick without a bottom grate, in order to economise the fuel.

Ornamental cast-iron mantelpiece, in Berlin black, with dining-room grate complete. Another, with new arrangement of fire-grate. Provisionally registered. Another, with brass ornaments, and register grate complete.

Bright drawing-room grate. Burnished steel drawing-room grate. A similar one, with gilt ornaments. Brass fenders, some with burnished steel. Sets of polished fire-irons, with brass and steel heads, plain, twisted, and octagon patterns.

804 KENNARD, R. W., *Falkirk Iron Works, Falkirk, and 67 Upper Thames Street, London*—Manufacturer.

Self-acting kitchen ranges; self-acting cottage range. Register grates. Arms of the United Kingdom—with the proper shields and crests, upon pedestal, with inscription. Arms of England. Various ornamental castings. Vase and pedestal, for the floor.

805 BAILY, WILLIAM, & SONS, 70 *Gracechurch Street*—Designers and Manufacturers.

Pedestal stove, with ascending or descending flue, suitable for halls, vestibules, or public rooms; with bronzed candelabra on the top for gas, manufactured in wrought and cast-iron, and brass and enamelled slate.

Fire-place of coloured marbles, with stove, suitable for reception rooms, saloons, &c., manufactured of porcelain, burnished steel, wrought and cast-iron, and brass.

A piece of cast ornamental iron work, suitable for balcony or screen.

Gothic chandelier for gas; and pedestal lamp.

A glass case containing old English door handles, locks, bell pulls, &c.

Gothic stove, with ascending or descending flue, suitable for public buildings, &c.

A Gothic fire-dog, an Elizabethan fire-dog, and an ornamental fire-dog, with brass shield.

806 OTLEY, WILLIAM, & Co., *Parkgate Steel Works, Rotherham*—Manufacturers.

Specimens of steel suitable for engineering, tool-making, spindles, &c.; also for carriage-springs of every description.

807 CHAMBERS, W., *Brunswick Foundry, Oozells Street, Birmingham*—Proprietor.

Samples of steel snuffers, showing the principal processes of manufacture, from the castings to the finished state.

Specimens of carpenters' planes, made from malleable iron, and other metals, with planed surfaces, superseding planes made from wood; also one in the rough state, showing the perfect malleability of the iron.

Patent elastic metallic bed-sacking, showing the manner in which it is attached to wooden bedsteads.

808 THOMPSON, F., *Westfield Terrace, Sheffield*—Inventor and Manufacturer.

Patent gutta percha skates. Specimens of various colours and combinations in imitation of rosewood, boxwood, ebony, marble, &c. These skates possess the advantages of lightness and excellence of material, improved shape and construction, great strength and durability, combined with novelty and richness of appearance.

810 JENNINGS, G., *Great Charlotte Street, Blackfriars Road*—Manufacturer.

Patent India rubber tube water-closets in section. These closets were chosen by Messrs. Fox and Henderson, and are fixed in the superior refreshment courts of the building.

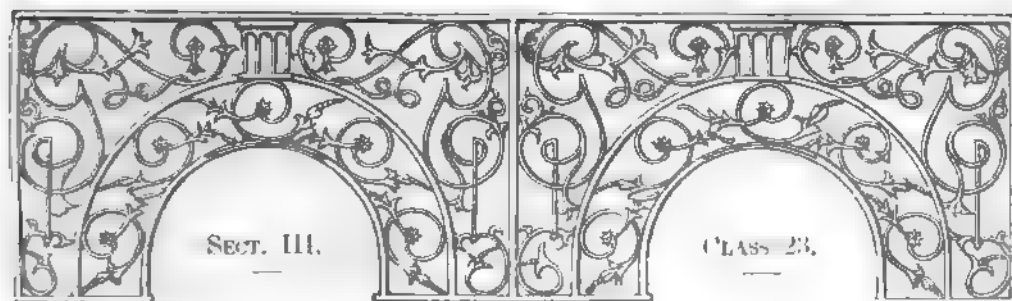
Patent India-rubber tube cocks, various sorts.

Patent improved cistern valve.

Patent shop shutter shoe, for securing shop shutters without a bar.

Improved mops and brushes for cleaning railway and other carriages, the same being self-supplying.

Patent joint for connecting lead and other pipes without solder.



WORKS IN PRECIOUS METALS, JEWELLERY, ETC.

INTRODUCTION.

THE present Class comprises objects of great attractiveness to almost every individual. The opportunity they afford for the display of taste and skill, and even of a high description of art, combined with the intrinsic beauty and value of the material in which these objects are wrought, makes them an extremely interesting study. It is impossible, also, other considerations being disregarded, to suppress a feeling of surprise and admiration at the massive character of many of the articles in this Class, indicating the wealth and resources of the manufacturers. As an instance may be mentioned, a solid silver table-top, fifty-five inches in diameter, and weighing nearly nine hundred ounces. But when it is considered that upon the reduction of the unshapen metal into its present form, the artist and mechanic have both been occupied, and that the result is to indicate not less the talent of the one than the industrial skill of the other, these objects, whatever their size or intrinsic value, assume, in proportion to the degree of talent and labour employed in their manufacture, a new and higher value.

The Class is divisible into the following Sub-Classes:—A. Communion Services; B. Articles of Gold and Silver Plate for decorative purposes, and Presentation Pieces; C. Smaller Articles for more general domestic use; D. Electro-plated Goods of all descriptions, comprehending all that can be executed in Silver and other Metals; E. Sheffield and other Plated Goods; F. Gilt and Or-molu Work; G. Jewellery, inclusive of Precious Stones and Ornaments worked in Ivory, Jet, &c.; H. Ornaments and Toys, worked in Iron, Steel, and any other metal, which are neither precious metals nor imitations of them, as Chateaux of Steel, Chains of Steel, sword-hilts, Cut-steel Shoe and Knee Buckles, &c.; I. Enamelling and Damascene Work; and J. Articles of use or curiosity not included in the previous Sub-Classes.

The general position in the Building of the articles in this Class is in the South Central Gallery. After passing from the cases containing lace and embroidery, proceeding westward, those which contain the articles of the precious metals are met with, and extend from M. 6 to 22. But several objects properly belonging to this Class, and included in it, are exhibited, as in other instances, in other parts of the Building; the Jewel-case and the Great Diamond exhibited by Her Majesty are instances of this description.

Articles in the precious metals are produced in almost all large towns, and those exhibited are consequently derived from a number of different localities. In the metropolis very large and wealthy firms exist, producing usually large quantities of silver goods, upon some of which great expenses are incurred, in order to give to them the character of art-productions. Since the introduction of the beautiful art of electro-plating, Birmingham has supplied very large quantities of silver and electro-plated articles, and a number of extensive factories exist in that town, in which this strictly chemical operation is practised on a grand and commercial scale. In Sheffield the process of plating by fire, that is, by the soldering a plate of silver on an metal of copper by means of heat, rolling out and fashioning for use, has long been successfully pursued. It has been estimated that the value of the British-made plate annually used in this country amounts to 1,200,000*l.*, and the exports of plate, cutlery, &c., amounted in 1849 to the value of 233,058*l.*

All these varieties in the manufacture of the objects of use and luxury included in this Class, will be found illustrated by the productions of different exhibitors, by many of whom a gorgeous display of plate and jewels is made. Attention cannot fail to be directed to the Great Diamond, the Koh-i-Noor, and to the Jewel-case, in the cinque-cento style, exhibited by Her Majesty the Queen. In addition is a table of gold and silver electro-plated, which is an interesting reproduction of an antique subject. The massive specimens of presentation plate exhibited will likewise receive due notice. Among the jewels are several interesting and perhaps unique specimens; one of the latter is a large blue diamond, weighing 177 grains.—R. E.

ELKINGTON, MASON, & Co., *Norall Street, Birmingham,*
20 & 22 *Leaden Street,* and 45 *Monopole Street,*
London. Inventors, Patentees, Proprietors, and
Manufacturers

Glass case of electro plate containing large centre table-napkin, and two smaller ones; subjects taken from the animal games. Centre pieces for fruit; designs, "Crown supported" and "Convolvulus." Flower-stand; design, "Sea-horses."

Glass case of silver and electro plate containing centre piece and candelabrum, "Oak tree and stags." Two compotels for fruit. Three arm epergne and platen. Tea and coffee service, complete, engraved. Inkstand, "Milkmaid and goats." Centre piece for dessert service with three baskets. Gothic tea and coffee service, complete, engraved. Inkstand, "Laboea at the well." Two centre pieces for fruit, "Gnomes." Gilt candelabrum and platen. Elizabethan inkstand, the "Dawn of love."

after Thomas Brooks. Tea and coffee service, complete; embossed. Cake basket, with figures and flowers. Ink-stand; "Please remember the grotto." Centre-piece and candelabrum; "Shepherd and sheep." Tea and coffee service, complete; arabesque. Three-arm epergne; Elizabethan. Ornamented Gothic communion service, complete. Pointed Gothic communion service, complete. Flower-stand, with "Bull and horse." Tea-trays of various designs.

Glass case of electro-plate; containing a Vase, intended to represent the triumph of Science and the Industrial Arts in the Great Exhibition; style Elizabethan. The four statuettes on the body of the vase, are Sir Isaac Newton, Lord Bacon, Shakspeare, and Watt, intended to represent Astronomy, Philosophy, Poetry, and Mechanics. On the four bas-reliefs, between the figures, the practical operations of Science and Art are displayed, and their influence typified by the figures on the base; with H.R.H. Prince Albert, as originator and patron of the Exhibition, awarding the palm of honour to successful industry. Height of the vase, four feet; designed and modelled by William Beattie. This vase is represented in the accompanying Plate 11.

Glass case of silver and electro-plate: containing large centre-piece, for eight lights, in the style of the 15th century, with figures supporting baskets for fruit. Venison dish and dish-cover; arabesque. Entree-dish and cover, and warmer; arabesque. Centre-piece and candelabrum; arabesque. Butter-boat; arabesque. Two table-spoons and forks of new designs. Entree-dish and cover, and warmer; arabesque. Meat-dish, arabesque; with Gray's registered gravy well, which separates the fat from the gravy. Two entree-dishes and covers, and warmers. Large centre-piece, with three figures, "Commerce, Wealth, and Fortune." Soup-tureen; arabesque. Pickle and cruet frame; arabesque. Claret-jugs, fish-carvers, and wine-coolers, of various designs.

Glass case of fine art, and art manufactures, containing part of a service of plate, silver and gilt, comprising a dinner and dessert service; designed and adapted from the antique by the Chevalier de Schlick.

Bronzes: the hours' clock case, in electro-bronze; designed and modelled by John Bell; exhibited as a specimen of metal work applied to sculpturesque composition for useful purposes. The hours' circle round the dial; day and night below; a representation of rock and sea; and a pierced ornament, emblematic of twilight, support the composition, which is surmounted with the veil of heaven set with stars. The enamelled dial represents the sun, its centre being a flying phoenix. The body of the composition thus representing Time, is surmounted by Psyche ascending, superior to time.

"Theseus:" reduced by Mr. Cheverton from the original in the British Museum, made for the Arundel Society, in electro-bronze.

"Eve's Hesitation:" statuette in electro-bronze; designed and modelled by John Bell.

"Venus di Medici:" exhibited as a specimen of fine casting.

Commemoration tablet and inkstand; designed by John Leighton.

Plate, representing the days of the week; composed by the Duc du Luynes.

An oak sideboard, ornamented with bronze electrotype bas-reliefs, intended to show the application of electro-bronze to decorative furniture; designed by John Guest; the cabinet work executed by J. H. Taylor, Birmingham.

Geoffrey de Mandeville, Earl of Gloucester, A.D. 1215; made for the Royal Commission of Fine Arts, in electro-bronze, being one of the statues designed for the new House of Lords: modelled by J. Sherwood Westmacott at Rome.

Group, illustrative of Cambro-British history. Tewdric the Great, king of Gwent and Glamorgan, having embraced Christianity, conquers the Saxons at Tintern Abbey, on the Wye. The Welsh king, wounded, urges the pursuit of the flying Saxons, attended by his daughter, and an aged bard proclaims the victory: designed and modelled by J. Evan Thomas, sculptor.

Colossal head of a horse, in electro-bronze, by the Baron Marochetti.

Colossal head of "Ocean," from the Antique.

Bust of H.R.H. Prince Albert, by Baron Marochetti.

Bust of His Grace the Duke of Wellington, by Baron Marochetti.

Bust of the late Sir R. Peel, by John Edward Jones.

Large bas-relief, in electro-bronze, a cast from the original by Fiamingo.

Glass case of silver, containing a group representing Queen Elizabeth entering Kenilworth Castle, A.D. 1575. The subject selected by the Committee of the Warwick Town Plate, for the next September races; designed and modelled by Jeannest.

Glass case of silver and electro-plate: containing sideboard dish, in silver; subject from the "Iliad;" designed by Charles Grant. Gilt tankard by Jeannest. Candelabrum, after the antique. Wine-cooler, electro-plated and gilt; subject, from a beautiful marble basin, still existing in the Villa Albani, the "Apotheosis of Hercules," valued as a specimen of Greek workmanship; designed by Kaupert and Gunkel. Race plate: designed by Gunkel, modelled by Rossi at Rome. The bas-reliefs on the frieze represent "Strength, Swiftneess, and Prudence." In the centre a mask of the Goddess of Love. Bracket candelabrum; designed by George Stanton. Set of three sideboard plates; designed by Charles Grant; subjects from the story of "Acis and Galatea." Sideboard plate; the parable of the "Prodigal Son," a reproduction by electro-deposition. Fruit plate, in the Alhambra style. Electrotype copy, in silver, of the celebrated cup, by Benvenuto Cellini, from the original in the British Museum. Silver salt cellar, "Louis Quatorze," by Jeannest.

The following articles, exhibited by the Queen, were manufactured by the exhibitors:—

1. Jewel-case, in bronze, gilt and silvered by the electrotype process. Designed by L. Gruner, Esq., in the cinque-cento style, containing portraits and profiles of the Royal Family.

2. Table of gold and silver electro-plate; the top an electrotype reproduction of a plate obtained and copied for the exhibitors by Chevalier de Schlick; subjects in bas-relief, Minerva, Astrologia, Geometria, Arithmetica, Musica, Rhetorica, Dialectica, and Grammatica; centre, Temperance and the four elements; the table designed by George Stanton.

[The process of gilding and plating metals, by the agency of electricity, commonly called electro-gilding and electro-plating, has become an important branch of industry, which is rapidly increasing since the patent was granted to the exhibitors in March, 1840. The industrial importance of the manufacture may be gathered from the fact, that in addition to the extensive productions of the patentees, and about thirty other manufacturers in England licensed to use it, the process has been extensively adopted in France and in other countries.

The advantages which plating by this process possess, are,—1st. The application of a white metal, approximating to silver in hardness and colour (as a base instead of copper), upon which the real silver is deposited. 2nd. The removal of all restraint as to form; the most elaborate ornaments, and the most complicated designs which can be produced in silver being equally obtainable by this process. 3rd. Permanency of plating, the coating of silver becoming, by the agency of electricity, one body with the metal on which it is deposited, rather than a mere covering. 4th. Economy in first cost and durability, as well as in the multiplication of works of art of the highest character; and the production, with equal precision and perfection, of copies from the smallest gem to the largest statue, possessing all the accuracy and beauty of the original design.]

2 **MARTIN, BASKETT, & MARTIN, Cheltenham—**
Manufacturers and Designers.

1. Centre-piece, with figures, representing "Science crowned by Prosperity;" with specimens of wax flowers, in bowl, by Mrs. Whittard, of Cheltenham.

2. Inkstand, with figures, representing "Milton and his daughter under their favourite mulberry-tree;" the former composing and dictating, the latter writing *Paradise Lost*.

3. Silver-gilt toilet-stand, with models of birds, flowers, and animals, suitable for a lady's boudoir.

4. Classical tea and coffee service, designed, modelled, and engraved; the subjects after the antique.

5. Large model of a Great Western steam-engine, to hold two gallons of coffee; made for the Great Western Station at Swindon.

6. Flower-vase, supported by dolphins, with specimens like No. 1.

7. Chased silver claret jug.

8. Bohemian glass claret jug, silver mounted, and a variety of elegant specimens of silver and silver gilt.

9. Registered chateleine in gold and enamel, arranged to take various-sized watches: it is said to keep the watch steady and safe, and to increase the beauty of the chateleine as an ornament.

10. Registered "porte fleur brooch."

11. Pearls, manufactured (by Messrs. Sparrow & Son, 11 New North Street, Red Lion Square, London) into a variety of new designs, in brooches, bracelets, necklaces, and ornaments, &c.

12. Specimens of gold jewellery, in bracelets, brooches, rings, &c.

13. Specimens of highly finished gold chains and jewellery, manufactured by Mr. Charles Sparrow, 11 New North Street, Red Lion Square, London.

14. Specimens of chronometer and other watches in their different stages of manufacture.

15. Time-keeper, newly-invented alarm, with instantaneous light, and fire and burglary detector; each can be used separately or be momentarily connected, and so arranged that it can be attached to any number of bells: if only time-keeper is required, all communication can be instantly stopped. The fire alarm can be used with or without voltaic electricity. — Inventor, E. Burgess, 4 Clerkenwell Green, London.

16. The atmithermometer and steam-alarm, an instrument to tell the amount of specific heat required for steam or laboratory purposes: it can be set to discharge a powerful bell from 10 to 400 Fahrenheit, or connected with bells at different parts of premises. — Inventor, E. Burgess, Clerkenwell Green.

Silver-gilt lion inkstand. Glass bowl for containing ice, mounted in silver gilt, the glass engraved with emblematical subjects. Silver-gilt sugar vase, and silver-gilt thistle inkstand.

Silver toilet bell-handle; design, "Boy stopping his ears."

Gilt rosewater dish, chased centre, with subject from *Andromeda and Galatea*.

Turquoise blue enamel and diamond watch, with enamel chain and appendages to correspond.

REID & SONS, 14 Grey Street, Newcastle-upon-Tyne—
Manufacturers.

Silver goods:—Chased claret jug, basket, and tea and coffee service, with emblems of the four quarters of the globe.

Pierced and engraved basket, with border of animals' heads.

Centre-piece for the table; vegetable dish and cover. Model of a coal waggon. Gilt inkstand, vase, and dish, &c.

Two days' marine chronometer. Lock-up time-keeper, or railway guards. Watch, with the latest improvements.

PAYNE & SONS, 21 Old Bond Street, Bath—
Producers.

Vase in silver, after a marble antique in the Capitoline Museum. This vase is represented in the following cut



Payne and Sons' Antique Vase.

5 **WALL, THOMAS, Stokes Croft, Bristol—Designer**
and Manufacturer

Original design in hair-work, after the Tuscan order of architecture, surmounted with a bronze figure of Britannia holding a medallion likeness of Her Majesty; also, ornamented with wreaths, a medallion of H.R.H. Prince Albert.

Ladies' guard, with anchor attached, made without a join. Bracelets, showing a new method of mounting without metal. Ladies' ear-drops, new designs. Watch-guards. Purse.

6 **GREENWELL, JOHN, Whitby—Manufacturer.**

Silver tea-pot, coffee-pot, and tea-kettle, weighing, altogether, two drachms, one scruple, or 140 grains.

7 **GREENBURY, ISAAC, Whitby—Manufacturer.**

Jet necklaces, with appendages attached. Bracelets. Brooches. Candlesticks. Pincushion. Likeness-stand. Earrings. Pieces of rough jet.

10 **TUCKER, JOHN THOMAS, Exeter—Inventor.**

Registered universal brooch protector, attached to a gold box brooch. The protector is a spring under the tongue of the brooch, which not only renders it secure, but removes the usual strain at the joints.

Models of the protector, showing its applicability to every description of brooch.

11 **HARDING, JOSEPH, St. Dunstons, Exeter—Designer,**
Inventor, and Proprietor.

Silver bracelet, with secure snap. Gold and silver bracelet, with the same snap. Bracelet with similar snap, which is applicable to necklaces, &c.

12 **ELLIS, HENRY, & SON, Exeter**—Inventors,
Designers, and Manufacturers.

Eight-day carriage timepiece, with duplex escapement and compensating balance.

Safety chain brooches, for effectually fastening a lady's dress. This brooch is represented in several forms in the following cut. The lower figure represents the brooch opened, it is fastened by pushing the point into the sheath.



H Ellis & Son's Safety Chain Brooches.

Silver-wire gauze jewel-casket, and a knitting-basket in silver (smelted from ores raised at the Combmartin mines, North Devon).

Silver plate, spoons, forks, &c., in various patterns, among which, "The Leaf pattern," is designed and registered. Silver asparagus fork, different designs. French silver cruet.

Devonshire granite knife-handles. The close texture, great durability, high polish, and colour of the stone, render it particularly adapted for knife-handles.

13 **MORTIMER, WILLIAM, 10 George Street, Edinburgh**—
Manufacturer.

An inkstand. The pebble and jasper agates found in Scotland.

14 **MAYER, JOSEPH, 68 Lord Street, Liverpool**—Designer
and Manufacturer.*Specimens of Roman Plate.*

1. A circular silver waiter, of 24 inches diameter. The centre group, the Queen attended by Concord and Public Security, presenting a laurel crown to the genius of the Industrial Arts, with figures indicating the importance of extending, by means of commerce, the bountiful gifts of the liberal and useful arts to every part of the globe. Fame, bearing the emblems of peace and commerce, proclaiming the memorable event. This centre is from a design by J. B. Crouchley, and was designed for one of the prize medals.

Around the group, in raised Egyptian characters, is the inscription.—"England consecrates to immortality the illustrious names of Victoria and Albert, and the memorable year of 1851." Outside this border are medallions of some of the great men of our country, as representatives of arts, commerce, and civilisation—Flaxman, Wedgwood,

Stephenson, and Watt. Round the whole is a broad border, divided into four compartments by figures of Fame, in each of which is represented the four divisions of the globe appropriately characterised. This silver was executed in competition for the Goldsmith's Company's prize.

2. A large-sized silver waiter, on an original plan. The centre is a raised flat, on which is chased a figure of the Queen, seated on a rock, and a globe entwined with a laurel branch, indicative of peace. In a lower circle are represented the principal trading nations of the earth exchanging their manufactures and produce with English merchants. The American giving his cotton, tobacco, &c., for the produce of Manchester and Spitalfields. The African exchanging ivory, palm oil, &c., for calicoes and articles of domestic comfort. The Asiatic transporting his spices and gums in exchange for manufactured articles. The Chinese is offering his tea and other products for cloths, &c.

The border is again raised above the chasing, to an equal height with the centre, and is a broad and richly-chased band, on which are grouped the various articles used in agricultural, mechanical, industrial, and ornamental skill. The centre is relieved by a polished band of bright silver, on which is engraved—"Monopoly is the parent of scarcity, of dearth, and of uncertainty." And on a similar band inside the border—"To Charles Edward Rawlins, Esq., Secretary to the Liverpool Anti-Monopoly Association, 1842 to 1847, presented by the Council and Members."

3. A silver inkstand, with representation of the commercial importance of Liverpool. The ink bottles are formed of the lotus and the cotton plant.

4. A silver cradle. The general form of the body is that of the nautilus shell, with appropriate figures chased in high relief.

The cut rests at each end on axes, so as to allow it to rock backwards and forwards. These are passed through the stems of two large sea-weeds or lavers, as they are locally called. At the base is an inscription to show that the cradle was presented to the wife of T. B. Horsfall, Esq., Mayor of Liverpool, in 1848, by a number of the burgesses of that town, in token of their approbation of his public conduct.

In the interior of the cradle are a mattress and pillow, made of filigree work.

5. Silver ewergive presented by the Liverpool Philharmonic Society to William Sudlow, Esq. The design is to exhibit the influence of music on the mind. Three figures are grouped: Apollo playing on the lyre; an Indian and a Philosopher listening. The figures lean against "a scrolled pedestal" which supports the basin that forms the upper portion of the ornament. The base consists of a tripod, with scrolls and wreaths of roses and laurel, on one of the façades of which is a chased basso-relievo. On the opposite side is also a bas-relief, exhibiting Homer reciting "The Fate of Troy" to his countrymen.

6. Silver candelabrum, having six lights, and a centre dish of glass. The group indicates the connecting of Carlisle and Lancaster by railway. On the base are chisings of views showing the cuttings at Sharp Fell, and the Lune and Lowther viaducts. This piece of plate was presented to George Mould, Esq., chief contractor.

7. The prize plate of the "Liverpool Royal Mersey Yacht Club": a silver vase with two handles; the body is ornamented with scrolls and festoons of flowers in relief; the base, three-sided, and the angles terminated with prows of vessels resting on the backs of dolphins; between the prows are pannels, chased in low relief with the following subjects: Cleopatra sailing down the Cydnus; Queen Elizabeth on the Thames, going to visit Sir Walter Raleigh, off Deptford; and Queen Victoria visiting the Royal Yacht Club, off Cowes. Over each angle stands the bird Liver, the adopted emblem of Liverpool, and surrounding the whole, is Victory standing on a shell holding out two wreaths.

8. Silver tea kettle, coffee and tea set, with chased subjects from the works of Sir David Wilkie.

9, 10. Silver tea kettle, coffee and tea set; the forms from the antique, and the ornaments engraved from the designs of Flaxman; with water-jug to correspond.

11. Basket in the form of a shell with seahorse's head for the handle.

12. Wedgwood ware, silver mounted sugar basket.

13, 14, 15. Claret jugs.

Jewellery.

1. An opal and diamond bracelet, the band removable so that the centre takes out and forms a brooch.

2. An emerald and diamond bracelet.

3. A carbuncle and brilliant bracelet.

4. An enamelled and diamond bracelet.

5. An amethyst and diamond bracelet.

6. A garter bracelet with diamond and opal buckle and rosette.

7. A gold necklace and bracelet, set with brilliants.

8. An emerald and brilliant necklace.

9. A ruby and diamond cross necklace.

10. An opal and brilliant necklace.

11. A double row pearl necklace, with an emerald and diamond pendant.

12. A strung pearl necklace and a brooch to correspond.

13. An enamel painting of Alexander and Cleone.

14. A brooch: a cameo portrait in hone-stone of the wife of Albert Durer, executed by himself.

15. A carbuncle brooch with diamond pendants.

16. A purple enamel and brilliant knot brooch with pendant.

17. A blue enamel and diamond brooch.

18. An emerald and brilliant engraved gold knot brooch.

15. WEST, JAMES, & SON, *Dublin*—Manufacturers.

Brooches, bracelets, neckchains, pins, rings, and pendant ornaments, composed of silver, oxidised silver, and gold and oxidised silver mixed, embellished with Irish pearls and other gems, copied from antique Irish ornaments.

16. CONNELL, DENIS, 10 Nassau Street, *Dublin*—Carver and Producer.

Cup, carved, with designs from scenes at Donnybrook fair. Inkstand with figures carved on the top, representing Irish strolling musicians.

Brooches, bracelets, necklaces, paper-knives, and card-cases, mounted in Wicklow gold and Irish diamonds, all made of Irish bog oak found in the lakes of Killarney—with new designs.

Bookstands, chessboards, card-cases, &c., from arbutus wood, grown at the lakes of Killarney.

17. MOSLEY, JULIUS, 46 Wicklow Street, *Dublin*—Designer and Executor.

Carved casket, in white and red Irish bog yew, with subjects in alto-relievo from sacred history, and allegorical representations of "Virtue and Vice." The wood found on Lord Farnham's estate, county Cavan.

18. BENNETT, THOMAS, 75 George Street, *Dublin*—Manufacturer.

Ark of the covenant, in silver.

Silver-chased large salver. Presentation cup Chased claret jug. Engraved claret jug.

Chased Dresden pattern tea-kettle and stand.

Engraved hexagon tea-kettle and stand. Dresden tea and coffee service. Hexagon tea and coffee service.

Plain hexagon tea and coffee service, with Irish wolf-dog button.

Chased scroll and flower tea and coffee service.

Chased and engraved children's cans.

Antique chased and pierced salt collars, with mustard pot. Antique and chased dessert sugar baskets.

Small melon bachelor tea-pot Plain Pompeii cream jug.

The above articles have been manufactured from silver obtained from the mines of Ireland.

Case containing fine gold jewellery and bog oak, all manufactured out of Wicklow gold and Irish pearls. In this collection is a newly invented flexible gold bracelet, suited for either a watch or miniature; exhibited for novelty.

20. WATERHOUSE, GEORGE & SAMUEL, 25 Dame Street, *Dublin*—Inventors and Manufacturers.

Registered brooches, adapted to cloaks and shawls, from the mineral products of Ireland.

21. NICOLL, W., *Prince's Street, Edinburgh*—Manufacturer.

Gold pens, pointed with iridium. These pens are alloyed with a certain proportion of platinum, and the points are iridium, an extremely hard metal.

23. MARSHALL & SONS, 87 Great George Street, *Edinburgh*—Manufacturers.

Set of accoutrements for a Highland dress, with chased silver mountings studded with carbuncles and cairngorms, viz., goat-skin purse, broad sword, dirk, powder-horn, skeen dhu, or hunting-knife; plaid brooch; sword-belt, body belt; shoe buckles; pistols; Athol bonnet; stag's head.

Silver claret jugs, of antique shape and figures.

Scotch pebble trinkets and jewellery, viz., bracelet; paper-cutter; quichs, or drinking-cups; brooches; chate-laine, studded with various Scotch pebbles; bracelet, with stones found in Aberdeenshire, Perthshire, and Forfar-shire; bracelet, with gold and cairngorms; silver and gold brooches with cairngorms; brooch with pearls and amethysts.

24. RETTIE, M., & SONS, *Aberdeen*—Manufacturers.

Gold and silver mounted granite, porphyry, and topaz bracelets, brooches, pins, &c. One of these brooches, is shown in the annexed illustration.



Let us Ornamental Brooch.

25. THOMPSON, F. H., 15 Brandon Place, *Glasgow*—Manufacturer.

Decanter stand, to hold three decanters and one claret jug. Coffee urn supported on figure of Time. Coffee urn on figure of Atlas. Tea kettle on gilt figure of Time.

Liqueur frame. Egg frame, with china bottom, and egg cup. Cruet frame, with glass bottom. Toilet frame.

Flower-stand, with terra cotta figure, all of new designs.

Inkstand, taken from the antique. Inkstand, modern.

Goblet, supported on figure of Cupid. Cheese-stand and cover.

Large centre piece, with figure of Mercury supporting flower-basket. All the articles exhibited are in electroplate.

26 BAIRD, WALTER, 72 Argyle Street, Glasgow—
Producer.

A Scotch ram's head, each horn measuring 3 feet 5 inches; mounted as a snuff-box and cigar-case, in gold and silver, adorned with a cairngorm and Scotch amethyst stones.

27 LISTER & SONS, Newcastle-upon-Tyne—
Manufacturers.

Medals, struck in commemoration of the Queen's passage over the bridge at Newcastle-upon-Tyne.

Snuff-boxes, card cases, novel jewellery, and Highland ornaments.

Silver claret jugs. Coffee and tea pots, basins, ewers, and cups. Fish and table knives and forks.

Eight-day spring clock, with lever escapement and compensation balance. Chronometer timepiece.

28 SPURRIER, WM., Birmingham—Manufacturer.

Electro-silver and gilt services, containing tea and coffee-pot, sugar-basin, and cream-ewer: Victoria, Brunswick, Venetian and cottage patterns. Dish and cover; Louis Quatorze; and cottage patterns.

Table candlesticks; arabesque and Brunswick patterns. Chamber candlesticks; cottage pattern.

Cake baskets; pierced and Victoria patterns; saving-kettle, with lamp; crust-frames, Gothic, pierced, and roll patterns; and mustard-pot and salt-cellar.

Pepper-box, arabesque pattern, mounted jugs; tea table, dessert, mustard, salt, and gravy-spoons; table and dessert forks and dessert-knives.

[The discovery, or rather application, of the principle of the electrotype process is due in this country to Thomas Spencer, of Liverpool, and was suggested by observing the exact copy in metal of some imperfections at the bottom of a cell in one of his batteries, which he had been using for scientific experiments. The electrotype process differs from the magneto process only in so far as the exciting agent is produced by the immersion of zinc, platinized silver, &c., in a solution of sulphuric acid, which is connected by wires or rods with the deposit trough. In this solution is suspended the articles to be gilt or silvered: the strength of the same is maintained by plates of the metal, of the same kind as is to be deposited, being suspended therein.—W. C. A.]

29 HILLIARD & THOMASON, Birmingham—
Manufacturers.

Silver fish knives and forks, taper-stands, brooches, bracelets, corals, card-cases, knife, fork, and spoon, card-baskets, snuff-boxes, paper and cake knives, bouquet holders, mustards and salts, and a variety of other fancy goods.

30 CARTWRIGHT & HIBONS, Birmingham—
Manufacturers.

Plated and silver-gilt crusts, inkstands, baskets, &c.

31 MARRIAN, FRANCIS, Cannon Street, Birmingham—
Manufacturer.

An epergne, or centre-piece. Etruscan jugs, plain and engraved. Antique coffee-pot and stand.

Chased salvers, registered pattern. Table and piano candlesticks, plated and gilt.

Elizabethan inkstand. A chalice. Toilet candlestick.

Vine pattern decanter-stand. Toast-stand, registered pattern. Antique castor frames. Toast-rack, wheat-sheaf handle.

Candlesticks, for Indian shades. Engraved tea and coffee service. Dish-cover. Souffet dish and stand.

32 WILKINSON, T. & Co., 15 Great Hampton Street, Birmingham, and 41 Tavistock Street, Covent Garden—
Manufacturers.

Articles of electro-silver plate upon German silver, viz.:

Centre-piece and plateau, Triton and Sea-nymphs under a canopy of real coral.

Candelabrum and plateau, subjects from "Paul and Virginia," &c. These are represented in the cut annexed and in the second cut on opposite page.



Wilkinson's Plateau.

Flower vase (and plateau), supported by a vine. Tea-urn, an Etruscan vase, supported by oak branch children playing introduced on the base. This is represented in the following cut.



Wilkinson's Etruscan Tea-urn.

Venison dish and cover, the handle—a group of d represented in the first cut on the next page.

Oval salver, ornamented with the bryony and engr centre. Dessert dishes, &c.

Salad-stands, coral, dancing girl, sitting figure, foliage. Wine-cooler, embossed panels.

Medallion basket, "Watt," modelled by Taylor.

Liqueur and cruet frames, Gothic style, and bry ornaments. Inkstands. Round salver. Butter-coo engraved, and ruby. Sugar-basket and candlestick. I tard-pots and salt-cellars, embossed and pierced.



Wilkinson's Ornamental Venison Dish.



Wilkinson's Candelabrum.

metallic base of electro-plated articles is formed in silver, or a hard white metal composed of nickel, and zinc, the several parts being held by hard solder, which fuses only at a very temperature. Under the old method, the figures produced must have been cast in silver, by the process they are cast of the white metal. After rolled or chased, they are electro-plated.—W. C. A.]

WILKINSON, WILLIAM, 11 Parade, Birmingham—
Manufacturer.

Electro-plated articles.—Consisting of Elizabethan and vine, with figures. Candelabra. Oak tree centre stand. Cruet frame, held by griffins, &c. Spirit frames. Egg stand. Salvers, and round salt, antique. Fruit stands. Flower stands. Candlestick, oak tree, with figure of Cupid shooting. Registered waiters. Sugar basin, antique, representing a bank with cattle, &c.

34 COLLIS, GEORGE RICHMOND, Church Street, Birmingham—Manufacturer.

An electro-plated wine cooler, a model, to the scale of one-fourth of the celebrated Warwick vase.

A solid silver table-top, 55 inches in diameter, weighing nearly 900 ozs., the surface engraved with stars, crescents, &c., for his Excellency the Governor of Aleppo.

Solid silver salver. Several centre ornaments. Branches and glasses.

Five tripod candelabra, designed after the antique by Sir Gardiner Wilkinson. One of the candelabra is represented in the adjoining cut.



Collis's Antique Candelabrum.

Centre ornaments on tripod stands, and composed of vine leaves and trellis work, with cut-glass dish for flowers subject, the Golden Age.

Fruit basket. Venison dishes, vegetable dishes and covers; hash dish and cover, with stand and lamp.

Ice-pail, small model of the Warwick vase, the body in crystal and silver ornaments.

Plateau, worked in foliage and flowers, with border of lilies. Salvers, with borders; boys holding baskets of flowers, &c., "Boys and panther," "Four seasons," &c., "Assiette montée."

Dessert plates, dish, and basket. Tea-urn, Elizabethan, tea urn, with military emblems. Soup tureen, with massive eagle handles and feet.

Claret jugs; cut-glass, and electro-plated, vine mounted, and Pompeian design, engraved.

Entrée dishes and covers. Bread and cake baskets. Salt-cellar. Fish and dessert knives and forks. Muffineers. Mustard-pots. Muffin plates and covers.

Tea and coffee services. Tea-kettle and stands. Chamber and table candlesticks. Sugar vases. Soup tureen and cover.

Glass cruet and liqueur stands. Small salver, vine border, engraving, "Bacchus and Silenus." Salvers, with subjects: The Great Exhibition Building, and Pan and Silenus. Gothic communion-service, engraved.

An urn, adapted for railways, constructed for supplying, simultaneously, tea, coffee, and hot water.

Machine, in solid silver, for slicing cucumbers at table. Spoons and forks, in electro-plate, of various patterns.

Dressing-cases. Glass butter-tubs. Toast-racks. Snuff-boxes. Waiters, engraved and chased. Bottle-stands, electro-plated. Decanter carriage, "Boy and panther." Inkstands. Dish-covers. Boy frame. Inkstand, sarcophagus shape, with Belshazzar on cover.

Chandelier, in glass cut on both sides, enamelled in various colours, relieved with burnished gold, begun by the late George Grundy, for George IV., and completed by Messrs. Collis & Co.

Series of 60 medals, in bronze, illustrative of the Holy Scriptures, with a reverse to each. Medals of the Kings and Queens of England, from William the Conqueror to Alexandra Victoria. Grand national medals, illustrative of the principal events during the late war. Series of 16 medals, illustrative of the sciences. Medals: agricultural, horticultural, botanical, of eminent persons, and belonging to various societies.

[This manufactory owes its existence to the spirit and industry of the late Sir Edward Thomason, to whose enterprising zeal the manufactures of Birmingham and its neighbourhood are deeply indebted. To copy, in the size of the original, the celebrated Warwick vase, was a labour and a risk which few individual manufacturers, at that period, would have attempted (its weight is upwards of 4½ tons). The extent to which he carried the silver-plate trade, as a metallist, button-maker, &c., still attest his energetic, enthusiastic, and liberal ideas.—W. C. A.]

35 HAWKSWORTH, EYRE, & Co., Sheffield—Designers, Manufacturers, and Proprietors.

A silver centre-piece, to serve as a candelabrum or epergne, with five branches, cut glasses, and tripod stand or plateau.

An assortment of articles in various styles, German silver, and electro-plated, with silver embossed edges and ornaments:—

Tripod candelabrum, in Egyptian style.

Flower-stands, in different patterns and styles of ornament.

Corner dishes and covers; table dishes and covers, soup tureen, *en suite*, in the Italian style.

Bread and cake baskets, in various styles and patterns. Servers or waiters, of different patterns. Liquor and cruet frames, different in patterns, and glasses. Silver-mounted claret jugs, coloured and plain.

Embossed oval coffee tray, with coffee and tea pot, sugar-basin, cream-jug, and tea-kettle, in the old German style.

Embossed plated coffee-tray, chased scrolls, with coffee and tea pot, sugar-basin, and cream-jug, embossed and engraved.

Butter-cooler, with glass and cow knob. Silver butter-cooler, of engraved and alabaster glass.

Sugar-baskets, assorted patterns, and coloured glasses. Embossed tea-canisters. Decanter and hock bottle stands.

Table, pianoforte, and bed-room candlesticks, in various styles. Snuffer-trays and snuffers. Salt-stands. Mustard pots.

36 BRADBURY, THOMAS & SON, Sheffield—Manufacturers

Coffee and tea services, consisting of coffee pot, tea pot, sugar basin, and cream ewer, of various patterns, with kettles and stands for the same.

Kettles and pitchers, plated and engraved.

Plateau, scroll pattern.

Tea urn, fluted antique pattern.

Double dish and warmer, with pierced and chased border.

Antique bread basket, engraved and pierced with antique massive mounting. Waiter and liquor frame for the same.

Liquor and cruet frames, various patterns.

Chamber candlesticks, Elizabethan.

Inkstands, pierced and engraved.

Bottle stand, pierced, antique.

Cake basket, engraved, French pattern.

Candelabrum.

37 HARRISON, JOHN, Norfolk Works, Sheffield—Manufacturer.

Epergne, of Venetian pattern, cut crystal basin, ruby glass lining, and coloured Bohemian glass cups.

Round chased waiter, with open border.

Wine coolers, or ice pails, of vine pattern; and Flemish style.

Liquor frame, open scroll border, with opaque gilt bottles.

Oval-shaped chased cake basket, with Italian open-work handle. Claret jug, Louis Quatorze pattern.

Table candlesticks, plain, fluted, scroll, and leaf pattern. Chamber candlesticks, bead and plain tulip pattern.

Centre ornament, Oriental pattern, with ruby enamelled gilt glass.

Centre ornament, Oriental foot, scroll socket, cornelian glass, green and gilt scallop edge.

Flower vase, Victoria pattern, ruby glass lining. Flower vase, Italian pattern, with drooping foliage, chrysoprase lining.

Registered flower vase, Italian pattern, with turquoise glass. Violet stand, with Bohemian coloured gilt glass cup.

Sugar basket, rose foliage in panels, ruby glass lining.

Sugar basket, plain, pierced with bead mount, turquoise lining. Cream ewer, foliage and chain pattern, with ruby glass lining.

Cream ewer, plain, pierced with bead mount, turquoise lining. Kettle and stand, fluted and engraved, with vine pattern stand. Toast racks, antique and Tudor pattern.

Hock bottle and stand, vine and scroll patterns, with Bohemian bottle.

The above articles are electro-plated on imperial metal.

Large engraved oval waiter. Round engraved waiters, with and without moveable border.

Plain oval dish-cover, Elizabethan handle, engraved shield. Fluted oval dish-cover, with ornamental handle.

Registered dish-cover, with moveable mount, column line pattern. Registered corner dish, with moveable mount. Oval-shaped corner dish, with loose warmer.

Liquor frame, foliage pattern, cut crystal bottles. Oval-shaped engraved bread basket. Round-shaped bread basket, with shaped drooping edge. Unique pattern claret jug, with vine stem handle and foot, engraved.

Candelabra, varied pattern. Table candlestick, Elizabethan pattern. Registered chamber candlestick, water lily pattern. Chamber candlestick, shell and leaf pattern.

Tea and coffee services, Chinese and Louis Quatorze patterns. Kettle and stand, Chinese pattern. Registered toast-rack, serpentine frame, with scroll pierced panels. Butter coolers, Elizabethan pattern, with cut crystal glass, and saw-pierced ornament, ruby glass lining.

The above articles are electro-plated on nickel-silver.

Tea and coffee service, Italian pattern (sugar basin and cream ewer with ruby glass linings), electro-plated on Britannia metal. Cruet frames, various patterns, electro-plated on nickel-silver, and imperial metal.

[Britannia and imperial metals are both composed of tin, regulus of antimony, and small portions of copper and brass. Articles of a complicated form, such as ornamental candlesticks, tea-pot handles, feet, &c., are cast in brass moulds. The bodies of these are produced by what is called *spinning*—a process by which fine thin discs of rolled metal are made to take the convex or globular form of the object desired: this is effected by the disc being placed against a suitable wooden block or chuck, which revolves in a lathe; and by means of the pressure of a steel tool or burnisher, the thin plate of metal is pressed against, and finally takes the form required; when, in two or more parts they are soldered together by tin

ch is melted by the heat of a blowpipe, and the adhesion of the two parts: the "mounts" d in the same way. Among the late improvements in electro-metallurgy has been the successful application of silvering to the softer and less metals, which has given an impulse to the production of articles elegant in form, and cheaper in proportion to the value of the foundation on which the article is made.—W. C. A.]

Idle pattern, and registered pierced pattern forks, &c., electro-plated on nickel silver.

forks, &c., are formed by being cut out of rolled German or nickel silver; the instrument used for this purpose is an ordinary press and tools; the impression is produced by a die and stamp, as also in the mouth of the spoon; the forms are then finished by hand, cleansed, and the electro-deposit on, as in other articles; they are brushed with brush, wet, beer-grounds being used; they are finished by hand.—W. C. A.]

MR. JAMES, & SONS, Sheffield—Manufacturers. Field plate.—Dish-cover, melon pattern, registered up-tureen and stand, coffee-tray, corner-dish, &c., of the Stowe pattern, antique style. Registered silver candelabrum and epergne, with crystal hanging about 750 ounces, illustrative of the four signed by Vincent Nicholson; also a massive circled by rock, sea-gulls, and shells, forming a inches diameter.

Free and tea service, designed from the Nipencher plant, with silver salver modelled from a Victoria Regina, furnished by Joseph Paxton, in parts. Registered.

alice, antique, gilt in parts; silver chalice and has relief, gilt. Table-dish and cover, with Grecian double dish in two sizes, with 1. Round silver tea-tray, weighing 184 ounces. Free-tray, vine pattern; coffee trays. oval, ded pattern. Entrée dish, with warmer and

Wellington and banded pattern spoons and ionic tea service, plated on Britannia metal; and pagoda pattern.

is of Britannia metal illustrated from the ore shed article, showing the compound, and the gas through which each article passes.

er venison-dish, with cover. Beef-steak dish, and corner dish. Swing-kettle, with copper d spurt lamp. Registered pattern tea-pot, in tea. A great variety of tea pots and other

- tackle. Gilt silver powder flask, engraved, ety of ponches, gun and pistol flasks, draun-d shot-belts, with every kind of toys or

TOOL OF DESIGN, Sheffield—Producers
ak cabinet and sideboard.

BERTS & HALL, Sheffield—Manufacturers.

, antique pattern, chased centre. Tea-urn, id silver-mounted. Tea-kettle and stand, b spirit-lamp. Tea and coffee service, chased, of tea and coffee pot, sugar basin, and cream side

unc, embossed, with cut flint glass bottles. l cruet frames, silver mounted and pierced, blue glass bottles, in separate compartments, be unscrewed and taken off for cleaning; on a ple. Cruet-frames, silver-mounted, embossed, d, with cut flint glass bottles. Egg-frame, gilt inside, and gilt spoons.

Antique salvers, with plain border and engraved centres. Round salvers, with embossed silver, shell, vine, and scroll borders, and chased centre. Bread-basket, with embossed silver shield, leaf-pattern border, and chased centre. Bread-basket, with silver vine border and pierced and chased centre. Cake-basket, with silver border and chased centre.

Registered toast-racks, one designed from the wheat plant, and another plain; both with oblique bars. The annexed cut represents the registered toast-rack, designed from the wheat-plant.



Roberts and Hall's Registered Toast-Rack.

Candlestick of square shell pattern. Antique round candlestick. Round candlestick, with silver shield and leaf borders. Candlestick of embossed silver vine pattern. Round candlestick, silver mounted. Round shaped or fluted candlestick, with silver border.

Centre piece, embossed with plateau, holding large crystal centre dish, and four small ones, having four arms with sockets for lights. The centre can be taken out and another introduced, which holds four additional lights, the small crystals can be removed, and sockets used, making in all 12 lights, when the crystal basins are not required.

Embossed silver-mounted bottle-slide. Pierced twisted-top bottle-slides.

The above articles are all electro-plated upon nickel silver, and are put together with hard solder, which effectually prevents any danger of their coming asunder at an ordinary heat.

41 OWEN & LEVICK, Sheffield—Manufacturers.
Silver-plated and Britannia metal ware.

42 PADLEY, PARKIN, & STANFORTH, Sheffield—Manufacturers.

Specimens of plated goods, plated with silver upon German silver in the ingot, exhibited for quality and durability.

Engraved epergne and plateau. Plain and chased dish-covers. Candelabrum or centre-piece, with glass centre

for flowers. Chased kettle and stand, with coffee and tea-service *en suite*. Raised chased kettle and stand. Engraved coffee and tea-service. Fruit baskets of different designs. Small sized round chased waiters. Large oval chased coffee-tray.

Hexagon pierced, chased, and pierced cruet-frames. Pair of four-bottle pierced cruet frames. Round flower-border corner dish, with hot-water stand. Soufflet-dish, and pierced liquor-frame, with coloured bottles. Pierced decanter-stand, and engraved egg-frame. Pierced ink-stand.

Butter-coolers, with engraved cover and stand, and chased cover and pierced stand.

Large and small engraved table candlesticks, with three light branch, and engraved bed room candlestick *en suite*. Plain gadroon candlestick. Sundry mustard-tankards, salt stands, &c.

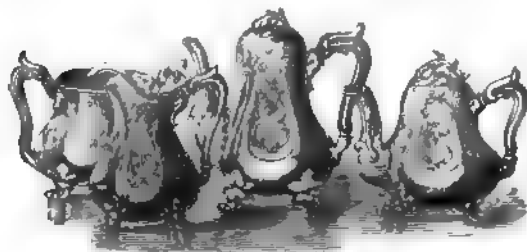
Ingot of German silver, with a piece of standard silver upon it, ready for plating. Ingot of metal, plated, as taken out of the furnace. Sundry pieces of plated metal, rolled down from the ingot, ready for working.

[The operation in the present instance is performed by heat and pressure, and the superficial covering of the foundation is effected previously to the commencement of the manipulation of the workman who makes the article. A piece of silver or gold is placed upon an ingot of the metal to be plated, and is introduced into a furnace, a flux having been put between the two surfaces, when, at a given point of heat, fusion of the two surfaces takes place, and complete adhesion is effected. The ingot is then rolled out into sheets by the ordinary process of rolling between steel rollers.—W. C. A.]

43 BROADHEAD & ATKINS, Sheffield—Manufacturers.

Silver plate. Electro-silver plate. Britannia metal goods. Mounted jugs, &c.

A group of electro-plated articles for the tea-table, coffee and tea-pot, cream-ewer, and sugar-basin. This group is represented in the following illustration.



Broadhead and Atkins' Electro-plate.

44 WILKINSON, HENRY, & Co., Sheffield—Manufacturers.

Epergne, with Triton holding branches. Epergne, with bacchanalian figures. Candelabrum, with figure of Mercury. Candelabrum, with Grecian ornament. Ice pail (Warwick vase), with pedestal. Silver pine-vase, with plateau, arabesque, and grapes. Sugar-vase and cover, of similar design. Silver sugar-stand, arabesque design. Tea-urn, with embossed scrolls and flowers. Coffee-trays, oval, chased, and with reeded shell borders.

Registered venison-dish and cover, Elizabethan, with side-dish and cover, with hot-water stand, of similar design, and soup and sauce tureens.

Registered side-dish and cover, Tudor style of ornament.

Silver decanter-stands, pattern, vine and Satyr's head, with grapes. Silver bread-basket, with bacchanalian masks. Bread-basket, with water-leaves, shell border. Silver claret jug, with design, "Hebe," embossed. Silver claret jug, with "Nautilus" design.

Candlesticks, silver massive, antique, fretwork, with masks, hexagon.

Registered silver inkstands, of Elizabethan and Egyptian design.

Silver cruet-frame, hexagonal, pierced. Silver cruet-frames, of arabesque and crescent designs. Silver communion-service, four pieces in mediæval style, with engraved texts, and ornaments. Silver communion pocket-service, in case. Silver font, of the 14th century, in case. Silver cups for children, embossed, with Tudor and fuchsia ornaments. Silver taper-stand, clustered pillar. Silver muffineer, embossed. Silver mustard-tankard and salt-cellar, with Gothic leaf ornament. Silver butter-cooler, in Tudor style, engraved.

45 CHESWICK, THOMAS, JAMES, & NATHANIEL, Sheffield—Manufacturers.

The whole of the articles in the following list are plated by fire, and have silver mountings, except the figures on centre piece, No. 851, the borders of plateau, No. 854, and waiter, No. 871, which are plated by the electro-type process.

Candelabra, plated on German silver. Centre-piece. Epergne and plateau. Fruit stand, plated on German silver. Centre stand and plateau, plated on German silver. Flower stand, plated on German silver.

Candlesticks, with branches, plated on German silver. Venison dish and cover. Corner dishes and covers, plated on German silver. Casserole and cover. Casserole and cover, plated on German silver, with warmer.

Ice pails, plated on German silver. Double shell salt-cellar, gilt inside. Saltcellars, silver feet, gilt inside. Bottle stand, silver shield. Carriage, with a pair of bottle stands, silver shield. Waiters. Waiters, plated on albatra. Candlesticks.

Bread basket, plated on German silver, silver handle. Cruet frame, silver handle, feet, and tops. Inkstand, plated on German silver. Embossed tea kettle and stand, plated on German silver, with tea pot, sugar basin, and cream ewer. Table dish and cover.

46 M'GREGOR, M., Perth—Manufacturer.

Ram's head, mounted in silver, with Scotch stones, as a snuff-box and a cigar-case.

47 MEYER & MORTIMER, George Street, Edinburgh—Designers and Manufacturers.

Ornaments of different Highland regiments in Her Majesty's service. Also, patterns of the tartans and kilts, with specimens of dirks, purses, brooches, and other accoutrements worn by each.

49 THORNBILL, W., 144 New Bond Street—Maker.

A steel chatelaine

51 BIDEN, JOHN & FREDERICK, 37 Cheapside—Proprietors and Manufacturers.

Twelve signet rings, designs the property of exhibitors—

a. Bloodstone, *Vesica Piscis*, scroll ornaments, standard gold.

b. White cornelian, enamel scale armour, standard gold.

c. Bloodstone, ornaments taken from the Saxon heptarchy A.D. 700, standard gold.

d. Red cornelian, enamelled red, after the Arabesque style, 22 carat gold.

e. White cornelian, enamelled green, after similar style, 22 carat gold.

f. Sardonyx, in cameo, shield for engraving, Norman style A.D. 1100, standard gold.

g. Red cornelian, on the shank a globe, wreaths of olive, motto *PAX*, in enamel, standard gold.

h. Bloodstone, Saxon shield, ensign of St. George, in enamel, 22 carat gold.

i. White cornelian, antique shield, shank bearing the crosses of St. George, St. Andrew, and St. Patrick in enamel, 22 carat gold.

k. Oriental amethyst, anchors entwined by cables, Union jack in enamel, 22 carat gold.

l. Black and white onyx, in cameo shield for engraving, enamel Arabesque ornaments, 18 carat gold.

m. Sardonyx, in cameo fancy scroll, 18 carat gold.

[The art of gem, cameo, and seal engraving is of considerable antiquity, as the number and excellence of the specimens in the collections of our own and other countries abundantly testify, exclusive of the evidence of Holy writ, that a knowledge of the process was familiar even to the Jews. The following expression occurs in Exodus: "With the work of an engraver on stone, like the engravings of a signet, shalt thou engrave the two stars with the names of the children of Israel." The Barberini vase is one of the most successful specimens of relief engravings on a material akin to precious stones.—W. C. A.]

s, o, p. Solid standard gold Roman rings. Sardis and bloodstone.

Ten gold seals, viz.:—

1. Chased amethyst, 22 carat. 2. Sporting horses, &c., crystal. 3. Fox-hunt, crystal. 4. Greyhound, red cornelian. 5. Round jug with compass, bloodstone. 6. Fox-scalp handle, red cornelian. 7. Scroll-handle swivel, seal and wafer, red cornelian. 8. Coloured swivel, white cornelian and bloodstone. 9. Scroll, fine sard. 10. Leaf-handle, red cornelian.

Various desk seals mounted in gold, designed by exhibitors, the agate handles of foreign manufacture.

A library seal, cairngorm, engraved with the arms and badges of H. R. H. Prince of Wales, mounted in silver gilt, the figures representing the four Seasons, supporting the handle, surrounded by wreaths of oak from the top; one of the badges of H. R. H., in enamel on gold, designed by exhibitors.

A brooch in enamel, modelled from the Victoria Regia lily.

Impressions of seals engraved on stone, steel, or gun metal; also impressions taken by Rider's process on wax, the manufacture of Messrs. Hyde.

[Seals are at all times executed in intaglio (or sunk); in cameos the reverse. The surrounding surface is cut away, and the subject is shown in relief with its minute details: not infrequently effect is given by selecting a stone or other material stratified; the superior surface forms the subject, and the surrounding portion being cut down to the dark-coloured strata, or layer, shows the figure, &c., in relief with additional effect.

The process of seal, or gem-cutting, is performed in a manner similar to glass engraving, viz., by means of a small lathe and copper-cutting tools, which revolves with the spindle, and is moved by ordinary treddles as a foot lathe; the tools are occasionally touched with diamond dust and oil, which facilitates and effects the indentation or incision; the more minute the work the smaller the tools—they are in many instances mere points. Care, a knowledge of form, and no small amount of taste, in connexion with good vision, is essentially necessary to the seal-engraver; the hand and eye being the only guides to assist him in the production of such minute and laborious works.—W. C. A.]

A fine gold key, set with stones. Manufactured by Drury Freeman, 41 Gee Street, Goswell Street.

A likeness in profile of the Queen, composed of 1,114 fine and perfect diamonds, rose cut. Manufactured by W. Stacy, 17 St. Alban's Place, Edgeware Road.

52 EATON, ELIZABETH, 16 Irvine Crescent, Cripplegate—
Manufacturer.

Silver forks, spoons, &c.

53 WOODBRIDGE, THOMAS, 4 Albion Road, Holloway—
Proprietor.

Chased silver design—Death on the Pale Horse, from the painting by West. The silver is only 1-32nd part

of an inch in thickness; the legs of the horse, as also the string of the bow, are all beaten up, and not soldered on.

54 RAWLINGS, JOSEPH, 85 Portland Road,
Regent's Park—Manufacturer.

Specimen of miniature frame, mounted and engraved—imitation of or-molu.

55 MILLS, MICHAEL, 17 Ossulston Street, Somers Town—
Producer.

Embossed and chased salver, produced from a plain sheet of silver; subject—"Aurora, or the Hours," after Guido; border, after the Tredacna shell.

Silver gilt claret-jug, in the Venetian style, after the pattern of one in the possession of the Andromini family at Venice.

Prayer-book, in Italian taste, mounted in silver on purple velvet, with a fine chasing in the centre.

56 INDERWICK, JOHN, 58 Prince's Street,
Leicester Square.

Smoking-pipe of Meerschaum, with a carved representation of the death of Nelson, mounted in gold and silver.

Registered tube for smoking-pipe. By compressing the tube with the fingers, the smoke is conveyed to the lips without the trouble of inhalation.

[Meerschaum, out of which the above pipe is made, is a mineral substance found in the islands of Samos, Negropont, &c.; it is at times used by the Turks as a substitute for fuller's-earth; also in the manufacture of tobacco-pipes. The ease with which it is worked adapts it to the construction of ornamented articles.—W. C. A.]

57 MORTIMER, W. H., 12 Harley Street, Cavendish Square—
Inventor.

Mechanism in gold for rectifying irregularities in the growth of the teeth.

58 DURHAM, J. B., 456 New Oxford Street—
Manufacturer.

Cast-steel chatelaine, in the antique style, with improved scissors and tablet.

59 CLEAL, WILLIAM, 53 Poland Street, Oxford Street—
Manufacturer.

Specimen of workmanship in human hair.

60 WARRINER, WILLIAM, 16 Charlotte Street,
Fitzroy Square—Manufacturer.

A finished or-molu miniature frame, set in crimson velvet.

62 LOEWENSTARK, A. D., 1 Devereux Court, Strand—
Designer and Manufacturer.

Silver filligree ancient incense-urn, lady's table bell, and pepper-castor, in three divisions, made of some thousands of pieces of silver wire. The first division is to admit the incense through a small door. The second contains the bell. The third or top division is the pepper-castor. The top and straight part unscrews to admit the pepper. The whole is put together with 37 screws.

Different specimens of filligree work. Masonic pearls.

63 RESTELL, RICHARD, 35 High Street, Croydon—
Designer and Manufacturer.

Registered cylindrical brooch protector: in gold, silver, gilt, and black, with ornamental pendants and chains; also with novel spring pendant holder.

64 GOODWIN, CHARLES—Proprietor.

China vase, mounted in metal gilt. Bloodstone cup, mounted in silver gilt, and ornamented with a variety of stones. Pastile burner.

65 WISEDILL, G. V., 1 Gloucester Place, Prospect Row,
Watworth Road—Inventor and Manufacturer.

Specimens of registered fastening for brooches, watch-protectors, &c. Specimens of self-acting double spring swivels.

66 ASBOTT, GEORGE, 4 Percy Street, Bedford Square—
Producer.

Bronze statuette; the Duke of Wellington at Waterloo.
A silver embossing of His Royal Highness Prince Albert, and of "The Sisters," after Stephanoff.
A cast, in silver, not chased, from an embossing ("The Inconstant") after Stephanoff.

67 MORLEY, THOMAS, 140 High Holborn—Proprietor.

Electro-gilding on soft metal, adapted for medals or any other purposes.

68 WOLFF, LOUIS JOHN, 45 Upper York Street, Brynston Square—Designer and Manufacturer.

Desk seal, mounted in gold, closely set with turquoises, spiral pattern with band of pearls, surmounted with large pearl, white cornelian stone for engraving.

69 GOWLAND, THOMAS, 5 Leutenhall Street—Inventor.

Registered design for spring catch fasteners for brooches and bracelets.

70 BAKWELL, WILLIAM, 25 Red Lion Street, Clerkenwell—Artist, Inventor, and Manufacturer.

Specimens of hair for lockets, brooches, &c. Inscriptions and initials of pearls. Prince of Wales' feathers in hair.

71 LEE, BENJ., 41 Rathbone Place—Manufacturer.

Bracelets of new design and construction, composed of human hair and gold, mixed throughout; the hair plaited by hand. Brooches of varied designs, composed of several shades of hair. Hair guard-chain, of a new pattern. Albert guards with keys of hair set in gold. Breast-pins and crosses.

72 SEYMOUR, EDMUND & JAMES, 40 Gerrard Street, Soho—Proprietors.

Small enamelled gold vase, with portraits of Her Majesty and Prince Albert (painted on enamel in imitation of cameos by J. Haslem). The vase designed, engraved, and enamelled by the exhibitors.

[Enamelling has not been neglected in this country. Enamelled trinkets have been found in ancient British barrows. The Saxons practised the art, as is proved by the enamelled jewel, made by command of the great Alfred, now at Oxford; and the gold enamelled cup given by King John to the corporation of Lynn, in Norfolk, is evidence that the Normans were acquainted with the art. Besides the tomb of Edward the Confessor, in Westminster Abbey, there are other proofs that enamelling was known in England in the middle ages.]

73 HOPE, HENRY THOMAS, 116 Piccadilly—Proprietor.

Casket, containing a blue diamond, weighing 177 grains, mounted as a medallion, surrounded by brilliants, and supposed, from its size and colour, to be unique. This diamond is represented in the annexed cut.



Hope's Blue Diamond Medallion.

[Diamonds are found white, pink, orange, yellow, green, blue, and black. To estimate their value, according to Jeffries, multiply by itself the number of carats of weight, and again multiply the sum by the value per carat; the value depends on the quality of the stone. It was supposed impossible to cut them until the year 1486, when the discovery was made at Brugs of using diamond dust for that purpose. The Mogul diamond, now in possession of Her Majesty, weighs 278½ carats, was estimated by Tavernier at 468,959*l.*, and by Jeffries' standard, would be worth about 622,000*l.* The Empress of Russia, in 1772, bought a diamond of 729 carats. The Regent, in the French crown jewels, weighs 136½ carats.—H. T. H.]

[The diamond consists chemically of the element carbon, in its purest form. When perfectly pure, it is absolutely without inherent colour. The colouring matter arises from the presence of some foreign substance in extremely minute proportions. Sir Isaac Newton, from the refractive properties of the diamond, long since made the happy conjecture that it was a combustible body, which experiment has frequently demonstrated.—R. E.]

74 HARDING, DANDO & Co., 23 Hutton Garden—Inventor and Manufacturer.

Specimens of patent spiral fastening, which may be securely attached to any article of dress without sewing, adapted to buttons, studs, pins, brooches, &c.

75 BAYLEY, W., George Street, Goswell Street—Manufacturer.

Specimens of electro-gilding on metals.

76 CAMPBELL, ANDREW, 43 Tottenham Court Road—Inventor, Designer, and Manufacturer.

Registered standard gold cornucopia, designed to combine the three several uses of a dress brooch, a flower-holder, and a watch protector.

77 FORSTER, ERNEST, 19 Queen Street, Haymarket—Producer.

Silver-gilt table-spoon, representing Jenny Lind as Alice in "Robert le Diable."
Silver snuff-box, embossed has-relief. The cover representing Daphnis teaching Chloe to play the flute.

78 EDWARDS, ROBERT, 26 Lisle Street, Leicester Square—Manufacturer.

Specimens of different colours and tints of enamel for jewellery.

Gold rings with enamel. Portraits, in enamel, of the Queen, Prince Albert, Shakespeare, and the Duke of Wellington. Gold waistcoat-buttons, coat-buttons, and shirt-pin, with enamel portraits of dogs.

79 BOSS, HENRY, 13 Great Newport Street, Leicester Square—Designer, Engraver, and Enameller.

Medallion: an assemblage of shields, displaying the heraldic devices, in incised enamel, on gold and silver, of the nations whose industrial works are shown in the great Exhibition of 1851. The shields are supported on either side by branches of laurel and olive. The entire composition is surmounted by the Royal Crown of England, in proper colours.

[Incised enamelling is a branch of decorative art capable of extensive application to the adornment of gold and silver plate, jewellery, cabinet, and other work.]

MEKMAN, GODFREY & SIMON, 38 Old Bond Street—Manufacturers.

try and malachite casket, mounted in or-molu, set with gems. Silver equestrian statuette seen, on ebony pedestal; silver figure of Prince Silver figure of Charles the First. Small mounted agates, enamelled and set with

STOCKEN, CHARLES, 53 Regent Street—Manufacturer.
:ty of dressing-cases.

GASS, S. H., & D., 166 Regent Street—Proprietors.

dessert service, of new design, modelled from ants in Kew Gardens (by permission of Sir W. Hooker, F.R.S., Director).

represents the *Nymphæa thermalis*, or Hungarian y, in flower; the leaves intended to receive the suits, and the stems springing from rock-work, are growing several rock-plants, the *Blechnum* e, of South America, and the *Polypodium*, of the es. Each leaf is capable of supporting a weight than 6 lbs.

represents the *Nymphæa rubra*, or red water lily, ast Indies, in flower; the rock-work decorated *Piper speciosum*, the *Blechnum occidentale*, and the m.

represents the *Calladium* and flower; the rock- orated with the *Piper speciosum*, and the *Blechnum* e.

represents the *Dillenia speciosa*, which has not n to flower; the rock-work decorated with the *occidentale*.

centre-piece, illustrative of a scene in Egypt; the upported by a sphinx; the group of figures are men of the country fetching water from a well; centre is a representation of the Doum palm-tree.

sugar-vase, composed of the sugar-cane sur- a glass dish, engraved in delineation.

er salt-cellar, representing the *Nymphæa rubra* on rock-work, supporting a glass.

corner dish, with dome cover, and open-work order, the handle representing the Iris flower.

gilt cup, with figures (after a design by R. Red- s[?], R.A.).

f silver-foliage pattern taper candlesticks.

d jewelled dessert set, in Elizabethan style, con- f knives, forks, and spoons, set with gems of vands, variously finished, some silver, others t, and others partly silver and gilt.

i, in the style of the cinque-cento period, set cious stones; representing a Gothic niche, com- carbuncles and diamonds, with a figure, in bril- "Britannia holding a trident" and an ancient n rubies, standing on a shell, underneath which ubdued dragon, terminating with three pearl

nle and diamond bracelet, with portraits of the nd H. R. H. the Prince of Wales (after the by R. Thorburn, Esq., A.R.A.), executed in ie revival of an art of the 11th century, and a is applied to miniature portraits (the engraving by . Crew).

gauntlet niello bracelet, designed by D. Maclise, A., descriptive of "The Promised Gift," "The ered," and "The Presentation," interlaced with e illustration (the engraving by Mr. J. J. Crew).

o was the art of line engraving on metal, the in- of which were filled up with a dark metal com-

It was used before the art of taking of impres- s known, is described by the monks Theophilus ini, and its most celebrated professor was Maso ra, of Florence, in the 13th century.—H. T. H.]

Williams's patent moveable button, secured by turning the shank; adapted for articles of dress, and applicable to any substances used in the manufacture of buttons.

Vase, 24 inches in height and 18 inches in circumfer- ence, composed entirely of human hair, with the mount- ings and ornamental parts in metal gilt. Executed by Mr. J. Woodley, 31 Cursitor Street.

84 PARAVAGUA & CASELLA, 3 Brabant Court, Philpot Lane—Importers and Manufacturers.

Branch of natural rough coral, of great size and value. Carving, representing Bacchus, of the finest coral, with pedestal and fittings.

Gigantic child's coral. Coral bracelet, set in gold. Necklace of diamond-cut coral. Pair of coral drops, diamond-cut, &c. Diamond-cut coral pieces. Coral ca- meos.

A row of 12 of the largest coral beads, called Codini.

Long row of large coral beads, called Caporesto Moro.

Large bunches of coral beads; 36 rows assorted large sizes, called Grossezze Moro; 30 rows regular sizes, called Filze Moro; 54 rows assorted sizes, called Mezzanie Moro; 71 rows small sizes, called Smezzati Moro.

Rows of finest pink coral beads; of pipe coral beads, called Olivette; of diamond-cut coral. Coral negligées.

[Coral is the internal skeleton, or organ of support, of a species of polype (*Corallium rubrum*), of which numerous individuals live in organic association, under a ramified form. The polype individuals are provided with eight arms, or tentacula, by which they seize their prey, and a stomach in which it is digested. The common connecting flesh is nourished, and the supporting axis of coral is secreted, by a continuous system of vessels common to, and conveying the nutriment from, the several individual polypes. The *Corallium rubrum* belongs to the order *Anthozoa* and the class *Polypi*. It is most common, and arrives at its greatest perfection, on the southern shores of the Mediterranean Sea.—R. O.]

85 BARLING, JOSEPH, 90 High Street, Maidstone, Kent—Designer and partly Maker.

Table and dessert spoons and forks, ornamented in a novel manner with enamel to form a part of a dessert service, exhibited to show the applicability of enamel to the ornamenting of various articles of silver plate.

86 NASH, ELIEZER (late JOSHUA BUTLER), 30 Coppyce Row, Clerkenwell—Designer and Manufacturer.

Pencil-cases:—Engraved, coloured gold, and set with turquoise; elongated enamelled; tortoiseshell, gold-mounted; engine-turned bright gold; engraved elongated; triangular; engine-turned hexagon; and engraved round silver.

Penholders:—Engraved silver-gilt; and on pearl and inlaid ivory handles.

Set of silver engraved and gilt instruments, comprising etui-case, crochet-needle, scissors, penknife, pencil, stiletto, thimble, and bodkin.

Pens:—Gold and palladium, with nibs of iridium.

Solid pressed tortoiseshell snuff-boxes, inlaid and mounted with gold.

Tablets:—Solid book, ornamented like the preceding; solid book, silver inlaid and mounted; pearl, inlaid with turquoise, silver-mounted; and ivory, similarly ornamented.

Trochus shell, inlaid, with engraved gilt mountings.

Tortoiseshell paper-folder.

Set of tortoiseshell instruments, gold inlaid and mounted, comprising paper-folder, pen-knife, pen-holder, pencil, and desk seal.

The elastic palladium point, or lead-holder, an improve- ment applied to pencils, was invented by Mr. Joshua Butler, and has been in use 20 years.

87 PHILLIPS BROTHERS, 21 Cockspur Street—
Inventors and Producers.

Equestrian statuette, subject—a British Life-guard, modelled from life, and executed in oxidised silver and gold. The arms and accoutrements are made to detach from the figure.

This statuette is represented in the accompanying illustration.



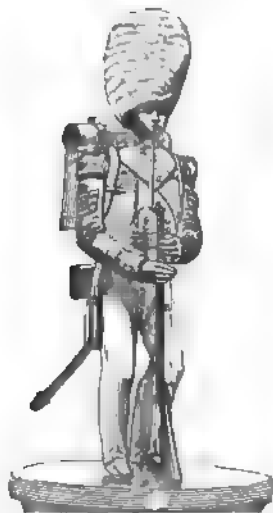
Phillips' Equestrian Statuette.

Two miniature copies of the same, mounted on malachite pedestals; and two on foot, adapted for seals or statuettes.

Two miniature statuettes in gold and silver, subject—Lablache, as Caliban.

Statuette composed of oxidised silver and gold; subject—a colour-sergeant of the Scots Fusilier Guards, modelled from life. Two miniature copies of the same adapted for seals or statuettes, &c.

This statuette is shown in the annexed cut.



Phillips' Infantry Statuette.

Casquette in bloodstone, chased with the attributes of the Life-guards; the same with attributes of the Foot Guards.

Ornament, forming either a Sevigne brooch or chape-laine, formed of topaz, mounted in gold and brilliants. Brooch-stone cameo head, surrounded by large brilliants, with crest and coronet of small rose diamonds.

Curious ornament of Chinese manufacture, in massive fine gold, and numerous figures in relief.

Two-day ship chronometer, with the latest improvements, previously tested at the Royal Observatory, Greenwich.

Gold watches, with various escapements, &c. A series of alarums. A series of gold swivels. An inkstand and writing apparatus, composed of carved coral, imported from Gagliardi, of Naples.

A set of chessmen and boards in silver and gold, in the renaissance style, ornamented with enamel, precious stones, and pearls. The chief figures are portraits of the German Emperor Charles V., and his daughter, Margareta of Parma; a stadtholder of the Netherlands; King Francis I. of France, and his daughter, Margareta of Valois; and a casket in silver, coral, various precious stones; and four malachite slabs.—Messrs. C. M. Weisshaupt, Hanau, near Frankfort, S. M., Proprietors and Producers.

Bouquet of flowers rising out of a classic vase, composed of silver, and wrought by hand.—Messrs. Thomas Strube and Son, Leipzig, Saxony, Proprietors and Producers.

Bracelet composed of three extraordinary specimens of pink topazes, mounted with brilliants in fine gold and green enamel. Bracelet, with four fine enamels, mounted in massive chainwork of gold. Bracelet, with large model curb chain in engraved gold. Bracelet, with bouquet of diamonds and green enamelled leaves.

Necklette and brooch, in carbuncle, diamonds, turquoise, blue enamel, and gold. Skull vinaigrette, modelled in gold.

Series of twenty signet rings, after antique models, in standard gold.

Series of fifty finely modelled gold pins, sporting and classical subjects.

Series of eleven pins, composed of precious stones.

Gold desk seal, figure of stag on white cornelian. Gold brooch, stag and dogs. Gold brooches, composed of various gems. A set of original sleeve ornaments.

Set of studs, composed of diamonds, emeralds, rubies, opals, and other precious gems. Sets of vest buttons, composed of rubies, turquoises, and opals.

Two-day marine chronometer, jewelled in six holes, helix balance spring, &c., in mahogany box. Another, jewelled in five holes, in rosewood box.

A library clock, in ebonised carved maple case. Duplex escapement compound chronometer balance, spiral spring, jewelled in six holes, beats the seconds, strikes the hour and repeats, &c., with glass shade and stand.

Carriage clock, in engraved and gilt case, patent detached lever escapement, jewelled in six holes, compound chronometer balance, &c., with glass shade and stand. Another, with gold balance, &c.

Camp timepiece, patent detached lever escapement, jewelled; enamelled seconds dial plate; in circular bronze case with engraved and gilt handle, and spring adaptation to support an inclined position; with travelling case, &c.

Carriage timepiece in a gilt and engraved case; patent detached lever escapement, jewelled, &c.; portable from its flatness, and rendered secure, on standing, by a new application for feet; travelling case, &c.

A vase of fine gold, out of which rises a flower (carnation); composed entirely of brilliants and rubies with enamelled leaves. Adapted also for brooch or head ornament. A collection of specimens of enamel.

88 ADAMS, G. W., Hosier Lane—Manufacturer.

Desert service, silver gilt; the Canova pattern; and in silver. In these are introduced that artist's "Dancing flower-girl reposing," and "Hebe." The figure on the

of spoon and fork "Sappho." The accompanying illustration represents a knife and spoon of this service, ornamental parts of which only are seen.



Adam's Silver-gilt Knife and Spoon.

Tudor pattern table, dessert, and teaspoons; table dessert knives and forks, gravy spoon, and fish spoons and forks, Corinthian and Palma patterns. Ornate sugar ladles, sugar tongs, grape nippers, tea, lobster scoops, and ice tongs.

FRENCH, J., & SONS, 5 Newcastle Place, Clerkenwell Close—Manufacturers.
Ondine signet ring, set in gold, with the motto "ite et industria."
Child's safety chain, of the hexagon Brazilian pattern.
Child's bracelet, of the cage pattern, with lockot suspended.
Child's earrings.
Child's chains, of the Brazilian, cable, cylinder, and link patterns.
Child's and cable pattern gold chains.

HERRMANN, A., 4 Oxendon Street, Haymarket
—Designer and Manufacturer
Child's wreath, with imitation of lace, cut with scissors. Ornamental paper work consists of two large leaves shape of palm leaves.

Bouquet, of various-coloured hair, in a new style. A family bouquet with key. Similar bouquet ornamented with pearls.

91 WHEELER, GEORGE & M., 28 Bartlett's Buildings, Holborn—Manufacturers.

Jewellery and trinkets of gold, silver, agate, precious stones, and pearls, consisting of brooches, bracelets, chains, earrings, lockets, watch protectors, thimbles, pencils, keys and seals, charms, paper knives, cigar cases, snuff-boxes.

Specimens showing the progress of a gold bracelet from the pure metal to the complete article.

92 HARVEY & Co., 126 & 128 Regent Street—Proprietors.

Silver candelabrum. The base is triangular, and composed of shell work, marine plants, and water, issuing through apertures formed about the ornament, and losing itself in shells placed to receive it. On the angles are three principal figures; Venus seated upon a shell, exhibiting the golden apple; Siren playing upon a harp; and Siren, entwined in a net, and presenting to Venus strings of coral. On the stem, of a spiral form, is a young Triton, crowning Venus with a wreath of pearls. Upon the summit, surrounded by marine plants, is Cupid. Springing from the upper part of the stem are three branches (to bear two lights each), composed of sea-weeds and shells; the whole forming a marine composition.

Silver fluted claret jug, from the antique.

Silver plain water-jug, from the antique.

Silver water-jug, from the antique, with subjects engraved from designs by Flaxman.

Silver statuette of Mercury, designed by Woodington.

Pair of silver-chased candlesticks, "Boys and dolphin."

Silver-chased Italian pattern tea and coffee service, consisting of tea-kettle with lamp and stand, coffee-pot, tea-pot, sugar-basin, and cream-ewer.

Chased silver-gilt rose-water dish, with antique chased centre.

Chased silver-gilt sacramental service, designed by Cundy, consisting of offertory dish, three patens, two chalices, and flagon.

Pair of silver-gilt mounted Vernet Martin vases.

Gold watch, invented by S. Boreham, to beat seconds, and to strike every minute or 60th second, so that seconds may be counted by the ear, while the eye is otherwise engaged, as in observing the stars passing the meridian, in counting the pulse, &c. It has only one extra wheel, and can be applied to the movements generally used. It has an improved escapement, embracing the fine actions of the chronometer and the strength and durability of the lever escapements.

94 SMILY, WILLIAM ROBERT, 9 Canonile Street—Manufacturer.

Chased silver coffee-pot, representing a hall in a desert; the handle and spout formed of oak, entwined with ivy; heads of Her Majesty and his Royal Highness Prince Albert, are introduced upon the body: designed by Mr. King, chased by Mr. Worster.

Tea-pot, silver gilt, representing the cultivation and preparation of tea. Chased silver sugar-basin, representing a West India sugar plantation, and cream-ewer, with an English farmyard. Gothic pattern silver tea-pot.

Child's mug, in silver gilt, with Wilkie's "Blind-man's buff," designed and chased by Mr. T. Edwards. Another, with scrolls and flowers, designed by Mr. Percy.

Silver spoons of antique design. Strawberry pattern spoon and fork, in silver. Silver spoons in the style of Francis I., Elizabeth, &c. Child's knife, fork, and spoon, with rose, thistle, and shamrock, and heads of the Queen and Prince Albert, silver gilt.

Sugar-ladle, the handle a lily with a fairy emerging from the flower, silver gilt. Cream ladle. Tea-caddy spoon, from the tea-plant. Sugar ladle, sugar cane handle, and shell for bowl. Variety of fancy silver salt spoons,

with busts and heads of the Duke of Wellington, Nelson, Shakspeare, &c.

Knives, forks, and spoons, in cases, engraved in the Tudor and arabesque styles. Fish-carvers, handles richly chased. Salt-cellars, of various new designs. Pepper-caster, with pepper-plant. Muffineer, with sea-weed and shell in silver.

95 MATTHEWS, EDWARD, 46 Bernick Street, Soho—
Designer and Manufacturer.

Heraldic design, in which are comprised the various royal arms and coronets since the Conquest, engraved on different metals, and emblazoned with sealing wax in the proper colours.

96 ROBINSON, WILLIAM, 70 Wymutt Street, Clerkenwell—
Manufacturer and Patentee.

Gilt clock-case, constructed of electrotype deposited plates; the gilding effected by the same patent process. Smaller case, made with deposited plates, but with the engraved lines in relief.

Electro-plated tea-caddy and inkstand.

Smaller articles showing the uses to which electrotype may be applied in manufactures, apart from its uses in the fine arts.

[Plates of copper, when deposited by the electrotype process on a smooth plate of another metal, present a very perfect surface, and if the voltaic action is carefully regulated, the metal is very hard and tough; if too rapid, it is liable to become brittle, from assuming a semi-crystalline structure. The electro-gilding in these examples, is readily effected by employing solutions of the oxide of gold in the cyanide or the ferro-cyanide of potassium.—R. H.]

97 HUNT & ROSKELL (late STORR & MORTIMER), 156
New Bond Street; Manufactory, 26 Harrison Street,
Grays Inn Road—Inventors, Designers, and Manufacturers.

1. Centre ornament and plateau, showing the application of silver to sculpture and decoration. The ornament is adapted as a stand for flowers by day, and as a candelabrum by night; and with these objects the various groups are selected to agree in subject.

On each quarter of the plateau are groups representing the Seasons. Flora attended by her Nymphs playing with flowers, and a lamb personifying Spring. Zephyrs bearing on their shoulders a female figure, crowned with wheat and carrying the sickle, representing Summer. Autumn is typified by the figures of Silenus, Bacchus, and Pomona. Winter, by the aged Saturnus, who, seated on a leafless tree, spreads his mantle over shivering nature; on his left is a figure representing Storms and Tempests, accompanied by wolves. Beneath the groups are the signs of the Zodiac.

On the foot of the centre ornament are figures representing the Quarters of the World, each being accompanied by appropriate animals.

The alto-relievo around the column represents Day and Night, attended by the Hours; and around the stem which supports the vase are four figures representing the Elements.

The whole is decorated with ornaments of the cinquecento period.—Designed and modelled by Alfred Brown, in the manufactory of the exhibitors.

The accompanying Plate represents this plateau.

2. A shield, embossed and chased in silver and iron, dedicated to Shakspeare, Milton, and Newton.

Shakspeare is represented seated in a vessel of immortality floating on the river of life, attended by Apollo, the god of Poetry, and Minerva, the goddess of Wisdom, who points out to him the various vices of humanity expressed by figures tormented by monsters. Genii of Poetry support tablets on which are inserted some of his finest writings. An eagle ready to soar indicates the lofty flight of his genius. On the side of the vessel is illustrated the seven ages of man. Three

floating Syrens repeat his poems; one, bearing the insignia of Folly, tells of Shakspeare's power of satire; Cupid, seated on a dolphin, illustrates the power of love.

The subjects on the iron border are from Hamlet:—His vision of the ghost of his father; his grief at the death of Ophelia; his vengeance and death.

Milton is represented dictating to his daughter his poem of Paradise Lost, inspired by Religion and Poetry, represented by two figures, one holding a torch and the other the lyre. Crouched behind a shield is Satan—

“Horror and doubt distract
His troubled thoughts, and from the bottom stir
The hell within him.”

Beneath the boughs of the forbidden tree is shown our first parents' disobedience, when

“From the bough she gave him of
That fair enticing fruit with liberal hand.”

Coiling around the stem is seen

“The enemy of mankind, enclosed
In serpent, inmate had!”

Among the branches is the Genius of Evil. A group of Angels is represented flying towards Eden. On the border is represented the battle between Abdiel and Satan. The angel Raphael cautioning our first parents against their enemy; and their expulsion from the Garden.

The third medallion is devoted to Newton, who is represented reclining on a globe, contemplating the wonders of the heavens. Behind him are figures of Time, Truth, and Wisdom, who rebuke two crouching figures, typical of Ignorance and Superstition. On the right is a figure of Earth instructing her children, who are identified with Europe, Asia, Africa, and America. In faint relief above is shown the system of attraction which he propounded—a figure represents the Sun, around which the planets pursue their course.

On the border is represented the accident which led Newton to the contemplation and discovery of gravitation, and the incident which awakened his mind to the prism. Between, is Genius in a chariot tracking space, indicative of his comprehensive mind. Surmounting the medallions in the centre of the shield is a figure, the Genius of Arts and Sciences.—Antoine Vechte, artist, in the manufactory of the exhibitors.

3. A vase, of Etruscan form, embossed from thin sheet of silver in the highest and lowest possible relief. The subject, which is treated in the style of Michael Angelo, is the destruction of the Titans by Jupiter, who made war upon them for having imprisoned his father Saturnus. The giants, sons of Caelus and Terra, seeking to revenge the death of the Titans, made war on the gods, heaved rock upon rock, mountain on mountain, “Ossa on Pelion piled,” in order to reach heaven. Jupiter routed the foes, who were crushed under rocks and mountains. On the summit of the cover is Jupiter, who, with stern and angry looks, grasps thunderbolts, which he hurls on the presumptuous Titans below. Bordering the cover is the zodiacal circle in low relief. On the body of the vase, on each side, are groups of giants, some climbing upwards, some crushed by the rocks hurled by mighty Jove. Supported by the handles of the vase, two bold presumptuous giants stand out in full relief, vainly menacing the father of gods and men. On the foot are fallen distorted figures, representing Vice and Presumption, writhing in the agonies of death. On the neck of the vase, in low relief, are two figures representing Time and Fate, the former with his scythe, the latter grasping serpents. Among the representations in low relief may be recognised Satyrs and Bacchanals, in bowers of vine; Neptune in his chariot, drawn by sea-horses, hurling thunderbolts at the giants, who cast rocks at him; flies and grotesque insects writhe in a spider's web, alluding to the fate of Arachne. Below one of the handles is Pan, beneath the other a skeleton. Crocodiles, winged serpents, fiery dragons, and other fabulous monsters of sea and land, wage war with one another.—Antoine Vechte, artist.

4. A testimonial, in silver, presented to Sir Moses Montefiore. The sphinxes are indicative of the captivity

63—81. A vase in silver, style of the cinque-cento period, enamelled and gilt. Looking-glass and stand. Testimonial, presented to Mr. Williamson, with Indian figures and animals. Two vases, of Etruscan form. An ice pail. Claret jug. Ornamented and plain tea sets. Gilt tea set. Coffee pot; tea pot; sugar basin; slop basin; cream ewer. Cake basket. Salts. Entree dish and cover. The Emperor's prize, Ascot, 1847. The Goodwood cup, 1848. Group in bronze. A shield in silver, with portraits of Field-Marshal the Duke of Wellington, the Duke of Richmond, the Marquis of Anglesey, &c., presented to the Goodwood races by the late Lord George Bentinck, now the property of Colonel Peel. Two equestrian statues of the Emperor Napoleon, and Field Marshal the Duke of Wellington; executed for his Grace in silver gilt, from models by the Count D'Orsay. The hand of the Infanta Josephine of Spain, in silver. Several ornaments, specimens of workmanship, in silver. Specimens of various patterns of spoons and forks, &c.

Large and fine collection of precious stones, 198 in number, from that of the late H. P. Hope, Esq.

Models of brilliants, and specimens of seal engraving.

Jewellery.

Diamond bouquet, being a specimen of the art of diamond setting. The flowers: the anemone, rose, carnation, &c., are modelled from nature. This ornament divides into seven different sprigs, each complete in design, and the complicated flowers, by mechanical contrivances, separate for the purpose of effectual cleaning. It contains nearly 6,000 diamonds, the largest of which weighs upwards of 10 carats, and some of the smallest in the stamens of the flowers would not exceed 1000th part of a carat. This bouquet is represented in the accompanying Plate.

Enamelled portrait of Her Majesty, on gold, by J. Haslem, after F. Winterhalter, painted by His Royal Highness Prince Albert's permission, from a picture in his possession. The portrait is surrounded with a wreath of oak, enamelled on fine gold, set with pearls and diamonds.

Ornament for the head, composed of branch coral, connected by leaves of enamel and gold, enriched with diamonds.

Several brooches and other ornaments in enamelled gold, set with diamonds. The flowers modelled from nature.

Enamelled portrait of Her Majesty, on gold, by J. Haslem, set as a bracelet, with carbuncles and diamonds. Specimens of ear-rings, in emeralds, diamonds, carbuncles, &c., after the marbles from Nineveh.

Enamelled portrait of Shakespeare, on gold, by W. Essex, from the portrait in the possession of the Earl of Ellesmere, set as a ring, with diamonds.

Enamelled miniature portrait of the late Sir Robert Peel, by W. Essex, set as a ring.

Several ornaments, specimens of workmanship in diamonds and other precious stones, &c.

Watches, &c.

Fine gold watch, with improved detached lever escapement, chronometer balance, isochronal spring, and dial showing the phases of the moon, thermometer with two different scales, days of the month, hours, minutes, and seconds' hands; the one underneath the other may be stopped at pleasure for any length of time, without interfering with the going of the watch, by moving a small nib on the side of the case, and when released by the same means, flies immediately under the other hand, and assumes the appearance of one hand only. This arrangement is very useful for scientific purposes. On the back the hours are enamelled in blue, and it also carries a *tac* hand for the purpose of feeling the time at night.

Fine gold chronometer, with tourbillon escapement, dial showing hours, minutes, and seconds, and carrying a thermometer with two different scales.

Flat gold watch, with duplex escapement, chronometer balance, isochronal spring, silver dial, showing hours, minutes, days of the month, and thermometer. It is so

constructed as not to require joints to the case; it sets and regulates at the side.

Gold watch, with flowers painted on blue enamel, detached lever escapement, chronometer balance, engraved gold dial.

Highly-finished eight-day marine chronometer, in rose-wood case.

Eight-day striking clock, engraved gilt case, chronometer escapement, and day of the month calendar.

Eight-day striking clock, engraved gilt case, with aneroid barometer and thermometer, detached lever escapement.

Large oval eight-day time-piece, engraved gilt case, with aneroid barometer, day of the month calendar, and thermometer, detached lever escapement, compensation balance.

Small oval eight-day carriage time-piece, engraved gilt case, with thermometer, detached lever escapement.

Square-shaped eight-day carriage time-piece, engraved gilt case, with day of the month calendar, detached lever escapement. The flatness of this clock renders it peculiarly adapted to the carriage.

Oval eight-day carriage time-piece, engraved gilt case, with perpetual day of the month calendar, detached lever escapement.

Clocks and watches of various construction.

Specimens of various precious stones, in the rough and wrought state; also, pearls, in the fish, attached to the shell, &c., 46 in number.

98 GARRARD, R. and S., & Co., *Pimton Street, Haymarket, Goldsmiths to the Queen—Manufacturers.*

1. Cup, in the form of a nautilus shell, floating on a wave; on the upper part of which is seated a figure of Neptune attended by nymphs, and preceded by sea-horses.

2. Tankard of ancient design, surrounded by a group, St. George and the Dragon.

3. Flagon, with side chains, with group representing Arabs of the desert hunting a lioness.

4. Ewer, in the style of the sixteenth century. The knight's challenge.

5. Kettle and stand, coffee-pot, tea-pot, sugar-basin, cream-ewer, and hot-milk ewer, Persian drop pattern.

6. Tea or coffee salver.

7. Table-candlestick in the style of Queen Anne, with group of boys supporting the nozzle.

8. Table candlestick, in the same style, with flat masks on shaft.

9. The same, hexagonal shape.

10. Table-candlestick, with scrolls, flowers, and boys, in style of Louis XIV.

11. Candelabrum, with scroll and fruit ornament, and six twisted foliage branches and centre.

12. Group,—Arabs of the desert tracking travellers by their footmarks in the sand.

13. Group,—The Arab disdains all inducements of the Turkish merchant to barter for his mare and foal.

14. Candelabrum, with six arms, in the renaissance style.

15. Ewer, in the style of Cellini.

16. Tea and coffee service, consisting of tea-pot, coffee-pot, sugar-basin, and cream-ewer.

17. Twenty-six inch flower border tea and coffee salver.

18. Ewer—Perseus and Andromeda.

19. Boy, in kneeling position, supporting basket of flowers.

20. Group,—“The Lasso.”

21. Female dancing figures, with baskets for flowers.

22. Ewer. The group represents Sioux Indians hunting the bison in the prairies of North America.

23. Tea and coffee service, consisting of tea-pot, coffee-pot, sugar-basin, cream-ewer, and high ewer, engraved Dresden pattern.

24. Cup and cover in the style of sixteenth century.

25. Candelabrum, with three branches, in the style of Queen Anne.

26. Group,—Lucy Ashton at the death of the Stag.

27. Group,—Hawking Party.

28. Tea and coffee service, consisting of kettle and



EMPEROR OF RUSSIA'S VASE, REPRESENTING THE LABOURS OF HERCULES. TWO SMALLER PIECES IN SILVER.
MESSRS. GARRARD.

brooches, rings, chains, &c., and having a large centre top. Ornamental frame, containing the miniatures of the Queen, H.R.H. Prince Albert, and the Royal Family; mounted in hair and gold. Designed and executed by the exhibitor.

[These works tend to show the amount of skill, taste, design, and variety, that workings in hair are susceptible of. It has been a class of manufacture of mediocre perfection hitherto; but from the ready weaving of the material into many forms, and its graceful union with gold, as well as its being peculiarly adapted for souvenirs, it may well claim to rank higher in artistic manufactures.]

100 WIDDOWSON & VEALE, 73 Strand—Manufacturers.

In silver, a centre-piece for the table:—A plateau with candelabra and dessert stands ornamented with numerous figures and armorial bearings of Lord Londesborough. Chased sideboard dish for rosewater.

Equestrian statuette of the Duke of Wellington.

Sacramental flagon and chalice, embossed with illustrative groups.

Claret-jug of antique form, with wreath of vine.

Breakfast service; consisting of coffee-pot, tea-pot, sugar-basin, and cream-jug of Etruscan form, ornamented with illustrations of the *Iliad* after Flaxman.

Inkstand, with figure. New grape-nippers.

Spoons and forks and a set of three wine-tables, of the Tudor period.

Bracelet of emerald and brilliants. Necklace pendants of the Elizabethan era, set with precious stones. A case of rings.

101 GRAY, JOHN, 5 Billiter Square—Manufacturer.

Series, illustrative of the manufacture of plated articles from metal plated in the ingot.

Ingot of copper, with the silver tied thereto, preparatory to their being united by fire.

Ingot of white metal, and ingot of copper after the silver has been united to them by heat only, without solder, or any other intervening substance.

Sheet of plated metal, rolled from the ingot.

Table dish made from the rolled metal, with silver mountings tied on, ready for soldering.

Steel dies, in which the silver mountings are struck, with mountings that have been struck therein.

Table dish in a finished state.

Waiter, that has been in use since 1801, made by the foregoing process.

A specimen waiter of the foregoing manufacture, as at present conducted.

[The ingot used in the manufacture of plated silver is not of pure copper, but consists of an alloy of that metal, in order to communicate to it the necessary rigidity. The ingot, with its superficial plate of silver tied on to its polished surface with wire, is heated in a furnace. The heat causes the union of the metals; and the ingot, after proper preparation, is fit for manufacture into various articles.—R. E.]

102 LAMBERT & RAWLINGS, Coventry Street—Proprietors.

Grand twelve-light candelabrum and dessert centre for the table, in silver; design, Britannia, in peaceful attitude, welcoming the representatives of the four quarters of the earth, with their various offerings and productions.

Large, partly gilt, silver wine flagon, chased with Gothic vine-leaves, &c.; another oak-chased.

Silver water-bottles, from the antique.

Pair of chased silver soup-tureens and stands, in the style of Louis Quatorze.

Ruby glass cups, mounted in silver gilt, after the antique.

Fancy centre salt-cellars: designs, Pegasus, Dolphin and Boy.

Fancy silver gilt inkstand, tessellated with malachite.

A pair of silver bottles with chains, from the antique.

Antique silver-gilt inkstand, in the Dresden style, with figures of Britannia, Commerce, and Plenty.

Pierced bread-basket, engraved with rose, shamrock, and thistle, and mounted with bunches of wheat, Indian corn, and wild flowers.

Chased knife, fork, and spoon, with figures—fish and game.

Pair of partly gilt dessert stands, copied from an antique stand of the fifteenth century.

Female figure supporting a basket.

Antique Italian pattern ewer, chased (fifteenth century).

Ruby glass tankard, mounted in silver gilt, from the antique.

Ruby and white enamel glass sugar-basin, with pierced silver-gilt mounting, after the antique.

Hot-water jug and cover; copy from the antique delf.

Partly silver-gilt stand, to hold six antique cups, for centre of table.

Old ball pattern, silver tea-kettle and stand, with coffee-pot, tea-pot, sugar-basin, and cream-ewer, *en suite*.

Octagon engraved silver coffee-pot, tea-pot, sugar-basin, and cream-ewer, *en suite*.

Ruby glass vases, moulded in the old style. Silver fruit stands with bacchanalian figures.

Chased antique pattern, silver-gilt flagon. Fine specimen of coral with malachite stand.

Antique pattern silver flagon and chalices. Gilt paten. Offertory plate. Chased silver paten.

103 ANGELL, GEORGE, 51 Compton Street, Clerkenwell—Manufacturer.

Large vase, in the Etruscan style, illustrative of the progress of civilization. The principal subject on one side is the invasion of England by the Romans; above it are allegorical figures, emblematical of the introduction of civilization to Great Britain. On the other side is the treaty of Penn with the Indians, with allegorical figures.

Candelabra, in eastern style, representing the attack of a boa constrictor on a lioness and cubs. Candelabra (acanthus), with figures of Truth, Justice, and Mercy.

Tea-tray, illustrative of the purposes of the Exhibition. The ship of all nations, commanded by Britannia, and steered by Father Thames, entering the Pool, attended by Neptune, and followed by Navigation and Commerce; above are figures representing the four quarters of the globe, with others of Justice, Fame, and History. Engraved medallions, in border, showing trading between the nations, steam navigation and machinery. Engraved and designed by Donalds and Son.

Trifle-stand, in the Italian style. Partly gilt engraved coffee-pot, tea-pot, sugar-basin, and cream-ewer. Partly gilt claret jug, Etruscan, and silver claret jug.

104 MARSHALL, EDMUND SMITH, 31 John Street, Tottenham Court Road—Manufacturers.

Gold-leaf for the use of gilders, bookbinders, japanners, writers, printers in gold, and others; also layers of gold. Gold-leaf for the use of dentists, gold lace manufacturers, and others.

Silver, copper, tin, zinc, lead, and tellurium; exhibiting an illustration of the malleability of the metals. Gold-beaters' skin, as used in the manufacture.

105 WATHERSTON & BROGDEN, 16 Henrietta Street, Covent Garden—Manufacturers.

Standard gold, enamelled, and jewelled vase, executed by the exhibitors, after a design by Mr. Alfred Brown. The group surmounting the cover represents the United Kingdom by the figures of Britannia, Scotia, and Hibernia. Britannia is in the centre, resting her hand on the trident; Hibernia is on her right; and Scotia on her left. Around the edge of the cup are four heads, symbolical of the



ENAMELLED AND SILVER FLAGONS, VASE, AND GOBLET. MR. ANGELL.

Group, representing Arab merchants halting in the desert.

Group, representing Sir Roger de Coverley having his fortune told by gipsies, and Addison standing behind, reclining against an old oak tree.

Caddy, engraved, gilt, and chased; another, engraved. Claret jug, chased, gilt, worked, and engraved; with illustrations and subjects.

Chased shields, with subjects—"The battle of Alexander and Darius," under medallions of the Queen and Prince Albert, four rivers, the Thames, the Nile, the Indus, and the Niagara; and on either side, Victory and Peace, Britain and History.

Silver, with engraved medallions, representing the labours of Hercules, &c.

Bread-baskets, and jewellery, consisting of bracelets, brooches, rings, &c., with new designs.

A group of these articles, comprising chased, gilt, and enamelled claret-jugs, flagons, goblet, &c., is represented in the Plate 104.

112 HANCOCK, CHARLES FREDERICK, 39 Bruton Street, Berkeley Square.—Manufacturer.

Ebony inlaid silver table, of 45 inches diameter, on which is a silver vase; in pure Etruscan, after designs in the British Museum. This table is represented in the accompanying Plate 86.

A group in massive silver: subject "The entry of Queen Elizabeth on horseback into Kenilworth Castle," attended by Robert, Earl of Leicester, and a page,—two greyhounds in the foreground. Modelled by Baron Marchetti; the dogs by M'Carthy. It is mounted on a pedestal of the period, in fine old oak, with twelve marble columns, on the base of which is inlaid the favourite cipher of Queen Elizabeth, EAE; on each side are gilt panels on which is engraved the arms of the Queen; and above inlaid is the motto "Semper eadem," usually used by Her Majesty. At each end are likewise gilt panels engraved with the sword of state, the three crowns of England, Ireland, and France, and the well-known motto "Justitia." Executed at the manufactory of the exhibitor. This group is represented in the Plate 13.

Group in silver, mounted on an ebony pedestal, called "The Goodwood Cup," from the ancient legend of Robin Hood contending for the golden arrow.

Group in silver, mounted on a pedestal, taken from an old legend, representing Guy Earl of Warwick contending with a dragon.

Large cigar box, 24 inches by 17, in silver vine and lotus leaves, on ebony, after drawings by Eugene Lami: in the inside is a water-colour drawing by Harding, representing the rock of Gibraltar.

A silver vase, with open vine work, as a centre-piece for the table, on a rock base, with a royal crown and reversed cipher F, entwined on each side.

Small silver candelabrum, in the style of Louis XIV.

Bottle-carriage, on three wheels, in massive silver, with open vine work, leaves and bunches of grapes.

Dressing-case, of silver, partly gilt in the Etruscan style, with silver-gilt instruments, the box inlaid with silver in the same style, in Coromandel wood.

Tea service, consisting of a tea-pot, sugar-basin, and a cream-ewer, the sides ornamented with medallions and ornaments in the Florentine style of the 15th century.

Dessert-plate, in silver, border in vine leaves, with dessert-knife, fork, and spoon.

Gilt eight-day carriage clock; the movement by Cole, strikes the hours, half-hours, and quarters, and repeating also the minutes.

Three-bottle liquor frame, mounted in silver, with vine branches and leaves.

Specimen of chasing (*repoussé*), a dog's head.

Regimental "cravate de drapeau," embroidered in gold, on Pompadour velvet, with the arms of His Imperial Majesty the Emperor of Austria, of the Countess of Trapani, and the Prince Anatole Demidoff, designed and executed by James Holbech, 3 Vigo Street, Regent Street.

113 ATTENBOROUGH, RICHARD, 19 Piccadilly—Proprietor.

Silver centre for the table, to hold fruit, flowers, or sweetmeats, representing boys carrying baskets; with useful adjustments.

Card-tray of silver and enamel. A bachelor's tea set. Patterns of spoons and forks, of a new design. These are shown in the cut. Dishes, with border to match.



Attenborough's Spoons and Forks.

An agricultural prize cup, the stem a tree; the body cattle, steam-engine, church, &c., with figures of Tin and Plenty.

Enamelled riband bracelet; brilliant ruby wreath. Brilliant and purple enamel bracelet. Brilliant bouque bracelet.

Engraved gold riband bracelet; enamelled and pea wreath.

Brilliant scroll, and green enamelled bracelet; registered band, the centre forming brooch at pendants. Emerald and brilliant bracelet.

Diamond and ruby riband, bracelet; turquoise, enamel and gold band.

Brilliant scroll bracelet, ruby centre, registered band. Bracelet, with brilliant and ruby rose-bud centre.

Bracelet with brilliant and enamel vine-leaf pendant. Bright gold-plait band bracelet. Registered.

Coloured gold-plait band bracelet. Registered.



140 HER MAJESTY THE QUEEN—Proprietor.

The great diamond called "Koh-i-Noor," or "Mountain of Light."—(*Main Avenue.*)

Jewel case, in cinque-cento style, designed by L. Gruner, Esq.

[The diamond denominated the Koh-i-noor, or Mountain (*Koh*) of Light (*noor*) has long enjoyed both Indian and European celebrity, and has accordingly been the subject of traditionary fable as well as of historical record.

According to Hindu legend, it was found in the mines of the south of India, in the days of the great war, (the subject of the heroic poem, or "Mahābhārata,") and was worn by one of the warriors who was slain on that occasion, Karna, king of Anga: this would place it about 5,000 years ago, or 3001 B.C. A long interval next makes it the property of Vikramaditya, the Rajah of Ujain, 56 A.C., from whom it descended to his successors, the Rajas of Malwa, until the principality was subverted by Mohammedan conquerors, into whose hands it fell with other spoils of infinite value.

Whatever may be thought of the legend which gives so high an antiquity to the Koh-i-noor, we might expect some more trustworthy information when we come down so low as the beginning of the 14th century, when Malwa was invaded and overrun by the armies of Ala-ud-din, the sultan of Delhi in 1306, according to the autobiography of the Sultan Baber, acquired the jewel. That it did become the property of the sultans of Delhi is little doubtful, but when or how is matter of some uncertainty, although the grounds of the difficulty have not hitherto been investigated.

In 1665, Mons. Jean Baptiste Tavernier, an enterprising and intelligent traveller, and an eminent jeweller, (although Ecuyer, Baron d'Aubonne,) visited India especially to purchase diamonds. His profession and his personal character seem to have recommended him to the favourable attention of the nobles of the court of Delhi, and of Aurungzebe himself, bigot as he was, by whose commands, Mons. Tavernier was permitted to inspect and handle, and even to weigh the jewels of the Imperial cabinet. Amongst them was one which far surpassed all the rest in size and value. Tavernier describes it as rose-cut, of the shape of an egg cut in two, of good water, and weighing 319½ ratis, which he says is equal to 280 of our carats; the rati being ⅔ of a carat. In another place he affects more precision, and calls the weight 279½ carats, and according to his mode of computing its value, he estimates its price at 11,723,278 livres, or about 466,000*l.* Agreeably to the rule given in Rees's Cyclopædia, its value, if of the weight of 279½ carats, should be 625,240*l.* Tavernier is evidently wrong, however, in his calculation of the weight of the Imperial diamond, for the rati, which in its original form is the seed of the *Abrus precatorius*, never weighs even two grains, whilst as equal to ⅓ of a carat of 4 grains, it should be 3½ grains, making the weight of the diamond, 1,118½ grains. The rati or gunja, however, as it is also called, is an actual jewellers' weight rather heavier than the seed, and has been found by trial to be equal to 2½ grains. If we call the Imperial diamond 320 ratis, its weight by this scale will be exactly 700 grains or 175 carats, a sufficiently near approximation to the actual weight of the Koh-i-noor, 186 carats, taken with more perfect scales and weights than the Imperial jewellers were likely to have provided, and with more care and deliberation than Tavernier might have

had the opportunity of exercising: of course he took the actual weight with the native standard of weight, the rati, and his valuation of the diamond at 279½ carats was the result of a mistaken notion of the weight of the rati. Upon the principle alluded to above, the pecuniary value of a diamond weighing 186 carats would be but 276,768*l.*

According to the same authority, this large diamond was found at one of the Golconda mines, which he calls Gáni, and which he visited: situated seven days east from Golconda. Gáni means merely mine, and the place is known as Gáni Partials: it was visited by the late Dr. Voysey, about 1823, and is described by him as situated three miles from the bank of the Krishna river: it is still worked, but the operations of the natives are confined to the rubbish of former excavations. (*Asiatic Researches*, vol. xv.) Tavernier states, that it had been first worked only about a century before, and that the great diamond had become the property of the chief Vazir of the last but one of the independent kings of Golconda, who betraying the interests of his master to the emperor Shah Jehan, secured the emperor's favour and protection by presenting him with the jewel: when it was given to Shah Jehan it was uncut, and then weighed 900 ratis, which by Tavernier's reckoning would have been equal to 787 carats. This great reduction in the weight he considers to have been the fault of the lapidary, one Horrenio Borgia, a Venetian, for he says, if he had understood his business, he might have extracted from the jewel something worth having, and yet done no wrong to the emperor, but left it much heavier than he did. The emperor was exceedingly displeased with him, and not only refused to pay him for his labour, but amerced him in 10,000 rupees; he would, says Tavernier, have levied a heavier fine, but it was all that the Venetian had.

Now all this seems very plausible, and we cannot doubt that Tavernier saw and handled a diamond in the Delhi cabinet, which in shape and weight approaches so closely to the Koh-i-noor, that it is very likely to have been the same; as it were very improbable that there should be two diamonds in the world so similar to each other. The subsequent fortunes of the diamond of the Great Mogul confirm the identification; but the same resemblance occurring in a jewel elsewhere described, throws great doubt upon Tavernier's story of the cutting of the stone, and renders it almost certain that his account of its origin and of the manner in which it came into the possession of Shah Jehan is altogether inaccurate.

The Pathan kings of Delhi were supplanted by the Moguls of the house of Timur in the beginning of the 16th century, and the first of the dynasty, Baber, became sovereign of Hindustan, by the defeat of Ibrahim Lodi, in 1526, or 139 years before Tavernier's visit to Delhi. Baber, as is well known, wrote, or at least dictated, his own memoirs, copies of which are not rare, and which have been translated into English by the late Dr. Leyden and Mr. Erskine. Immediately after the battle of Panipat, Baber sent his son Humayun against Agra, the citadel of which had been held for Ibrahim by Bikermajit or Vikramaditya, Raja of Gwalior, who had been also killed at Panipat. As Baber relates the story, "The family of Bikermajit and the heads of his clan were at the moment in Agra. Upon Humayun's arrival they attempted to escape, but were stopped by the parties stationed to watch their movements, and were brought in prisoners. Humayun would not permit them to be plundered, and of their own free will they presented to him a peshkash, consisting of a quantity of jewels and

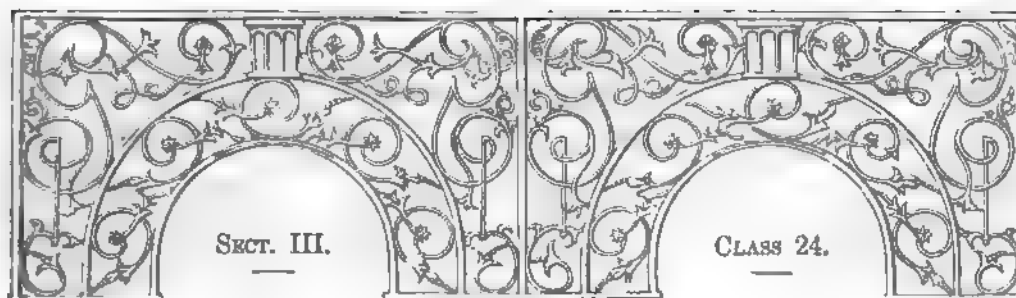
precious stones; amongst which was one famous diamond which had been acquired by Sultan Ala-ud-din. It is so valuable that a judge of diamonds valued it at half of the daily expense of the whole world; it is about 8 mishkals in weight: on my arrival Humayun presented it as a peshkash to me, and I gave it back to him as a present."—*Mem. of Baber*, 306.

We have here unquestionable testimony of Baber's having come into possession of a remarkable diamond, which from its weight and value was very possibly the same that Tavernier saw. The translator of Baber, in a note, makes 8 mishkals equal to 320 ratis, which is the same as Tavernier's specification. According to Ferishta, who repeats the story, the weight was 8 mishkals, or 224 ratis only, which would make it only 491 grains, or 125 carats. Baber's expression, however, is "ghálíban," which would indicate not actual but estimated weight: according to the actual valuation of the Arabian mishkal at 72 grains, the weight of Baber's diamond would be 576 grains; but it is always difficult to fix with precision the value of Indian weights and measures, as they vary in different places and at different times. It is sufficient to determine that Baber obtained a diamond, corresponding nearly if not exactly in weight and value with one found above a century later in the possession of his descendants. The weight, however, of Baber's diamond being much the same as that of Aurungzebe's, the story of the original weight and the loss in cutting is not to be relied on. It might indeed be supposed that we have two different stones intended; but besides the improbability that two diamonds of unusual size, so nearly or so exactly the same, should have been met with, it is worthy of remark, that Tavernier did not see in the imperial cabinet any second diamond at all approaching the great diamond in dimensions—the largest diamond in succession that he saw did not exceed 62 carats. The large diamond in the peacock throne he estimates at 80 or 90 carats, whilst none of the rest were more than 10 or 12. Had there been two large diamonds, one obtained by Baber and the other by Aurungzebe, he would scarcely have failed to notice both.

It still remains to be established, however, how far the great diamond of the Mogul emperors is to be considered as the same with the Koh-i-noor, as that appellation is not given to it by the earlier writers. That the Mogul diamond passed into the possession of the ruling family of Kabul is, however, invariably affirmed by the members of that family, and by the jewellers of Delhi and Kabul, and is by both identified with the Koh-i-noor. We know from concurrent and unquestionable evidence, that Nadir Shah, on his occupation of Delhi in 1739, compelled Mohammed Shah, the great grandson of Aurungzebe, to give up to him everything of value that the Imperial Treasury possessed, and his biographer and secretary specifies a peshkash or present by Mohammed Shah to his conqueror of several magnificent diamonds. According to the family and to popular tradition, Mohammed Shah wore the Koh-i-noor in his turban at his interview with his conqueror, who insisted on exchanging turbans in proof of his regard. However this might have been, we need have little doubt that the great diamond of Aurung-

zebe was in the possession of Mohammed Shah at the time of the Persian invasion, and if it was, it most certainly changed masters, and became, as is universally asserted, the property of Nadir Shah, who is also said to have bestowed upon it the name of Koh-i-noor. After his death, the diamond which he had wrested from the unfortunate representative of the house of Timur, became the property of Ahmed Shah, the founder of the Abdali dynasty of Kabul, having been given to him, or more probably taken by him, from Shah Rokh, the young son of Nadir: the jewel descended to the successors of Ahmed Shah, and when Mr. Elphinstone was at Peshawar, was worn by Shah Shuja on his arm. Mr. Elphinstone refers to Tavernier as having delineated the gem, intimating his impression of the identity of the Great Mogul's diamond and the Koh-i-noor, and Capt. Cunningham in his History of the Sikhs, calls it the great diamond which had adorned the throne of the Moguls.

When Shah Shuja was driven from Kabul, he became the nominal guest and actual prisoner of Runjit Sing, who spared neither opportunity nor menace, until, in 1813, he compelled the fugitive monarch, to resign the precious gem, presenting him on the occasion it is said, with a lakh and 25,000 rupees, or about 12,000*l.* sterling. According to Shah Shuja's own account, however, he assigned to him the revenues of three villages, not one rupee of which he ever realized. Runjit was highly elated by the acquisition of the diamond, and wore it as an armlet at all public festivals. When he was dying, an attempt was made by persons about him to persuade him to make the diamond a present to Jagannath, and it is said he intimated by an inclination of his head, his assent. The treasurer, however, in whose charge it was, refused to give it up without some better warrant, and Runjit dying before a written order could be signed by him, the Koh-i-noor was preserved for a while for his successor. It was occasionally worn by Khurruk Sing and Shir Sing. After the murder of the latter, it remained in the Lahore Treasury until the supercession of Dhulip Sing, and the annexation of the Punjab by the British Government, when the civil authorities took possession of the Lahore Treasury, under the stipulation previously made, that all the property of the State should be confiscated to the East India Company in part payment of the debt due by the Lahore Government and of the expenses of the war. It was at the same time stipulated that the Koh-i-noor should be surrendered to the Queen of England. The diamond was conveyed to Bombay by Governor-General the Earl of Dalhousie, whom ill health had compelled to repair to the coast, and was there given in charge to Lieut.-Col. Mackeson, C.B., and Capt. T. Ramsay, the Military Secretary to the Governor-General, to take to England. These officers embarked on board Her Majesty's steam-ship *Medea*, and left Bombay on the 6th of April, 1850. They arrived at Portsmouth on the 30th of June, and two days afterwards relinquished their charge to the Chairman and Deputy-Chairman of the Court of Directors, by whom, in company with the President of the Board of Control, the Koh-i-noor was delivered to Her Majesty on the 3rd of July—an appropriate and honourable close to its eventful career.]



GLASS.

INTRODUCTION.

THE beautiful and valuable production, which forms the subject of the present Class and its subdivisions, is beginning to assume an extraordinary degree of importance in the present day. Yet few manufactures have, until within a very recent period, made so small an amount of progress. Every process of the manufacturer having been beset with the stringent regulations considered to be necessary to enforce the due observance of the Excise laws, and no exemption being permitted even for the purposes of experiment or improvement, it is scarcely a matter of surprise that the production of glass remained in a poor and imperfect state both as a manufacture and as a philosophical problem. The same causes now no longer existing, a vast amount of progress has been made both in the extension of the applications of this product, and also in the processes of its manufacture.

Considered philosophically, the Class resolves itself into the following subdivisions:—A. Window-glass, including Sheet-glass, Crown-glass, and Coloured Sheet-glass; B. Painted, and other kinds of ornamented Window-glass; C. Cast Plate-glass; D. Bottle-glass; E. Glass for Chemical and Philosophical Apparatus; F. Flint-glass, or Crystal, with or without lead, white, coloured, and ornamented for Table Vases, &c.; G. Optical Glass, Flint and Crown.

The position in the Building where articles in this Class will be sought is in the Central North Gallery, where an extremely beautiful and interesting collection of various articles in glass is displayed. Immediately above these articles, and suspended from the girders of the roof, are large and costly chandeliers, of great magnificence of appearance, and in white and coloured crystal-glass. But in other parts of the Building various large objects belonging to this Class are arranged, as in the Transept and Main Avenues. The size of these will not fail to render them appreciable to the visitor. The whole Building may, in fact, be regarded as a display of the powers of the manufacturers of this country to produce rapidly, and from apparently exhaustless resources, this beautiful material.

As the glass, forming so large a portion of the Exhibition Building is of Birmingham production, it may be reasonably imagined that from this town the largest contributions of glass have been forwarded. The glass manufacture being extensive in this place, has become developed to an enormous degree after the removal of the Excise restrictions in 1845. Formerly glass was made in Birmingham only by large manufacturers, but now the commoner kinds of blown and pressed glass are produced in large quantities by persons having only a small amount of capital, manufacturing on a limited scale, at a cheap rate, and requiring a rapid conversion of the proceeds of their little furnaces into money. The glass thus produced is of the most inferior kind, and could only find a sale in consequence of its marvellous cheapness. The works of the great manufacturers are on the most splendid and extensive scale, and in them the manufacture of this strictly chemical product is carried on upon a truly philosophic basis, and on the grandest commercial scale. As an evidence of this may be adduced the production at one great establishment, in addition to their ordinary business, of that vast surface of glass which covers and protects the Building. Probably in no other country could a demand as sudden and unexpected have been met with so much certainty as in the instance in question.

In addition to the glass of the Building, the Great Crystal Fountain, in the Transept, has its interest as a production derived from the same locality. This fountain is twenty-seven feet in perpendicular altitude, and contains about four tons of pure crystal glass. It is probably the largest production of the kind ever made. The great specimens of plate-glass, one of which exceeds considerably the size of any previous sheet of glass made in any country, are not exclusively from Birmingham. St. Helen's, Sunderland, Newcastle, and other localities, contain large glass-works, some of which are exclusively devoted to the manufacture of plate-glass, which is a very distinct art from that of ordinary glass. Bottle and chemical glass is produced on a vast scale at Stourbridge, a locality possessing several natural advantages for the prosecution of glass-melting. Glass-houses exist in the Metropolis itself, which turn out principally table and ornamental glass.

A most remarkable circumstance in the history of the glass manufacture is the fact that, during half a century prior to the removal of the duty, notwithstanding the augmentation of the population, there was actually a decrease in the quantity of glass manufactured. Since 1845, however, it has immensely increased, and is daily receiving new applications, the value of the material for a variety of purposes having long been recognised, but its employment being rendered impossible by the excessive duties to which it was subjected.

English manufacturers have lately been making important experiments with a view to discover a method of producing glass free from colour, and from *striae*, for optical purposes. Several specimens are exhibited in illustration, and appear to promise favourably for the issue. The great refracting Telescope in the Nave is an

evidence that large achromatic glasses, nearly a foot in diameter, are capable of being produced from English glass. Hitherto much of the optical glass has been derived from abroad. It is a gratifying fact that already glass is beginning to be actually exported for the use of continental opticians, and it is sometimes reimported at a higher rate into England, under the assumed title of foreign glass. Successful attempts to imitate the beautiful art of the Venetians in ornamental glass have lately been made, and specimens are exhibited. New and patented processes of silvering glass, not with mercury, but with a deposit of pure silver, receive a variety of beautiful illustrations in different objects.

It would be difficult to name another material which could, with any advantage, take the place of glass in its domestic, economical, and philosophical purposes. The facility of its manipulation, combined with the beauty of the material, and the perfect applicability to the purposes for which it is designed, render this manufacture one of the most interesting, and probably ultimately among the most important, of this country. England possesses great facilities for the production of the best glass, on the largest scale and at the cheapest rate. In her natural stores of fuel, in her commercial resources of alkali, and in the possession of the requisite capital to enter largely into this branch of industry, this country appears to require nothing beyond a short space of time to assume one of the first positions in the manufacture of glass. And the variety of interesting facts which become daily linked with the progress of this art, appear to leave little doubt that, ere long, glass will be substituted for many of the materials used in the economy of our dwellings, and probably for their construction also.—R. E.

1 ROSS, O'CONNOR, & CARSON, *Belfast*—Manufacturers.
Watch glasses, in all stages of manufacture.

2 HETLEY, JAMES, & Co., 35 *Soho Square*—Producers.
Glass shades—round, oval, and square, of various sizes. Bas-reliefs in fictile, or imitation ivory. "The Writing-master," and "The Musician"—a pair, painted by Gerard Dow, modelled by George Abbott.
"The happy age of Infancy," painted by Martin, modelled by R. C. Lucas.

3 KIDD, WILLIAM, 12 *Poland Street, Oxford Street*—Inventor and Manufacturer.
New process for illuminating, embroidering, and silvering flat surfaces in glass; applicable to a variety of subjects strictly ornamental. The designs are engraved on the under side of the glass, although they appear to the eye as if embossed in high relief on the outer surface.

4 SWINBURNE, R. W., & Co., *South Shields and Newcastle-on-Tyne*—Manufacturers.
Silvered, naked, rough, and Venetian plates of glass. Opaque plates of glass, intended as a substitute for marble in articles of furniture, &c.
Perforated plates of glass for ventilation. Glass domes for skylights. Opaque glass table.
Glass pipes, with Mayo's patent joints, for conveying water and other fluids.
Sets of chemical apparatus for manufacturing purposes.
Glass trays, for dairy and domestic purposes.

5 PINKERTON, JOHN, 143 *High Street, Borough*—Designer, &c.
Plated metal dessert plates, inlaid with ornamental cut glass. Globe on pedestal, ornamental cutting, plated metal reflector inside; painted inside, with plated metal reflector; and ruby and blue ornamental cutting. Glass dish for chandelier, ornamental cutting, gilt metal reflector inside. Vase for chandelier.
Ruby glass dish for chandelier, ornamental cutting, plated metal reflector inside. Vases.
Candlesticks, inkstand, and dessert bowl, plated metal reflector outside, ornamental cutting. Sugar-basin on foot. Flower vase, ornamental painting, reflector inside.

6 THE AIRE AND CALDER BOTTLE COMPANY.
BREFFIT, EDGAR, *Castleford, near Pontefract*—Manufacturer.
Bottles for dispensing purposes. Bottles for confectionery. Fruit, pickle, sauce, and liqueur bottles. Wine and beer bottles. Bottles for coffee, spices, &c. Bottles for druggists' use, with improved pressed stoppers. Bottles for soda-water and other gaseous liquors.
All of these furnished with patent hollow corks and combination stoppers.

Bottles for miscellaneous purposes. Patent hollow corks. Patent combination stoppers. Glass tablets, with inscriptions. Glass insulators, for electric telegraphs.

7 WOOD & PERKES, *Worsbro' Dale, near Barnsley*—Manufacturers.
Glass taps of different sizes, with plugs secured. Ruby epergne, and the stand forming a separate fruit and flower vase. Glass inkstand and wafer-box.

8 SHEPHARD, JAMES, 5 *Crawford Passage, Ray Street, Clerkenwell*—Inventor.
Glass tubing, with screwed connections, for water, gas, or chemical purposes.
New glass stopcocks, for chemical purposes. Specimens of screw-cutting in glass.

9 SANDERSON, RICHARD, & SON, 9 *Brooke Street, Holborn*—Inventors and Manufacturers.
New partition glass, for Seidlitz and other effervescing powders.

10 OHLSON, JOHN, 70 *Union Street, Southwark*—Manufacturer.
Glass dishes, showing glass-cutting in three different stages, viz., cutting, smoothing, and polishing.

11 JONES & SONS, 5 *Ludgate Hill, London*—Designers, Inventors, and Manufacturers.
Mantel-piece girandoles, for two lights each, with glass shades and gilt stands.
Specimens of cut glass, door handles, shutter knobs, bell-lever, and escutcheons, in chased water-gilt mountings.
Cut-glass cornucopias, on plinths, chased, and water-gilt, mounted complete with shades and gilt stands.
Ruby glass decanters, engraved.
Cut-glass bowl, exhibited for workmanship. Cut-glass basin, with cover and stand. Cut table glasses. Cut-glass service.
A pair of candelabra, for five lights each; designed for a console table, ornamented, cut, and mounted in chased and water-gilt metal work.

12 GATCHELL, GEORGE, *Anne Street, Waterford, Ireland*—Manufacturer.
Etagère, or ornamental centre stand for a banqueting table; consisting of forty pieces of cut glass, so fitted to each other as to require no connecting sockets of any other material. Quart and pint decanters, cut in hollow prisms. Centre vase, or bowl, on detached tripod-stand. Vases with covers. Designed and executed at the Waterford glass works.

13 MOLINEAUX, WEBB, & Co., Manchester—Manufacturers.

Specimens of cut, engraved, and coloured glass, consisting of water jugs and goblets, wine and other decanters and claret jugs.

Finger-basins and coolers. Champagne, hock, and other glasses. Sugar-basins and cream-ewers. Flower and other vases. Dessert dishes. Centre-pieces, &c.

14 RICHARDSON, W. H. B. & J., Stourbridge—Manufacturers.

Cut crystal glass: consisting of centre-dish and stand, complete; with the following articles to correspond: 10 and 8-inch oval dishes, 9-inch plate, sugar-basin, quart decanter, and goblet.

Jugs, decanters, butter stands and covers, sugar-basins, oval dishes, celery glasses, goblets, and claret bottle, &c.

A great variety of cut and engraved glass applied to useful and ornamental purposes.

A variety of articles in coloured, frosted, and painted glass.

Opal vases, painted with enamel colours: subjects—Ulysses weeping at the song of Demodocus—Judgment of Paris—Diomed casting his spear at Mars—Dream of Penelope—Loch Oich—and from *Æsop's Fables*, the latter gilt; and various others.

Flower-vases of gilt; ruby, black, and flint-glass, cut and gilt; opal glass, painted—*Pet Fawn*—in enamel colours; opal glass, ornamented with enamel colours—*Grecian figures*.

A large collection of vases, jugs, cups, dishes, decanters, and glasses, exhibiting various modes of ornamentation, modern and Venetian.

Match pots with cover for taper, opal glass, ornamented with enamel colours and crystal glass as specimens.

[The glass manufacture at Stourbridge was introduced about 1556, by a number of refugees from the province of Lorraine, headed by an individual of the name of Henszle, now Ensell. The first glass-house was erected in 1557, at a spot near Stourbridge, and is still known by the name of "Hungary Hill." The existence of fire clay, and coal in the district, doubtless, in some measure, determined the localization of glass-making in this district: the sand is brought from a distance. To a descendant of the same family is due the merit of being the first to introduce an improved method of making the German-spread plate glass, as also the construction of an annealing chamber, or "side-lear;" the annealing process, previous to this, having been effected by placing the articles made above the top of the furnace.—W. C. A.]

15 DAVIS, GREATHEAD, & GREEN, Stourbridge—Manufacturers.

Quart decanters, of various patterns; water jugs and goblets: celery glass; finger-cups; tumblers; sets of liqueurs; wine, claret, and champagne glasses and goblets; centre dishes and stands; oblong dishes; cream-bowls; sugar-basins; butter-coolers; plates; pickle-jars, salt-cellar, and cream-jugs, of flint material and cut.

Lustres, in ruby and chrysoprase, with flint drops, cut and enamelled, and frosted.

Ruby centres and stands, finger-basins, ice plates, and hock glasses.

Liqueur bottles, ruby, blue, and green, coated on flint.

Ruby and opal lamp pillars, cut, enamelled, gilt, &c. Venetian goblets, wines, clarets, and champagnes, cut. Enamelled finger-basins and ice plates.

Italian landscape, painted on opal plate.

Enamelled card-basket mounted, royal plate, and curtain pin.

A great variety of vases, jars, and scent-jars, and scent-jars for holding flowers, &c., in the Egyptian, Etruscan, and Grecian styles; many of them cut, coated, gilt, painted in enamel colours, after the antique, with figures, ornaments, flowers, landscapes, and marine views,

of the following colours, viz., ruby, oriental blue, chrysoprase, turquoise, black, rose colour, opal-coated blue, cornelian, opal frosted, pearl opal, mazareen blue, &c. Topaz, flints, &c.

The black slabs upon which the vases stand are cut flint glass.

Specimens of the raw materials, from which the above articles were produced.

The whole of the labour and ornamentation performed by English workmen.

[*Enamel Colours*.—Enamels or vitrified colours, when applied to glass, are composed of a metallic base or oxide in connection with a flux or glass which melts or vitrifies at a lower temperature than the object to be ornamented or enamelled; the enamel is ground upon a glass slab with a glass muller in some essential oil, and is applied with a brush. An attention and a knowledge of the effect of heat on colours is essential to a successful enamellist. If the muffle acquires too great a temperature, the colour flies, or the object is distorted and rendered valueless.—W. C. A.]

16 WOOD, THOMAS, Stourbridge—Engraver.

Glass:—Blue cased dish; champagne bottle. Stained ruby bottle. Flint decanter. Tumbler. Ruby hock glass. Stained claret. Flint claret. Flint wine.

17 WEBB, THOMAS, Platt's Glass Works, near Stourbridge—Manufacturer.

Various patterns of glass, consisting of bowls and pedestals, dishes, sweetmeats, sugars and cream bowls, butters, ice-pails, plates and floats; pine stands, jugs, goblets, decanters, wines, liqueurs, fingers, coolers, tumblers, ales, salts, mustards, pickles, custards, jellies; soda goblets, flower vases, toilettes, pedestal lamps, lustres, &c.

18 LLOYD & SUMMERFIELD, Birmingham Heath, Birmingham—Manufacturers.

Table and dessert service of cut, plain, engraved, indented, embossed, rough and cut glass.

[Glass is engraved by the operation of small revolving copper-wheels upon a lathe, of which the spindle revolves with great rapidity; the copper disc is occasionally touched with emery and oil, which cuts the glass with ease.—W. C. A.]

Hall lamp, finely cut, intended for the use of gas or candle.

Glass medallion busts of the Duke of Wellington and Sir Robert Peel, in glass frame.

Specimens; materials of which flint glass is composed: sand, lead, potash, and saltpetre, in different periods of fusion till the perfect glass is obtained. Natural fracture of flint glass not annealed. Water fracture. Fracture of glass long exposed to intense heat.

Busts of Her Majesty the Queen and His Royal Highness Prince Albert.

19 BACCHUS, GEORGE, & SONS, Birmingham—Manufacturers.

Flower-stand, with vase and cornucopias. Vase, cased enamel on ruby, engraved. Grape dish. Decanter, threaded and engraved. Tazza, with spiral stem.

Groups of wine glasses, champagne glasses, and goblets. Sugar-basin and butter-dish, cased, enamel on green, with gold leafage.

Decanters, flint glass, cut and engraved. Goblets, various colours, cut and ornamented. Claret jug. Card-dish, cased, blue, on flint, cut in diamond panels, &c.

Vase, cased, ruby and white, cut and ornamented; vase, cased, enamel on flint, cut and engraved.

Jug, cased, enamel on blue flint, cut, engraved, and gilt, with goblet. Jug, cornelian, with goblet.

Decanter, Pomona green, cut. Champagne decanter, cased, ruby on flint, cut and engraved, with champagne glass.

Cut glass vase, "cased." Wine, claret, and champagne glasses, cased, coloured, and flint glass, cut, engraved, &c. Cut glass butter-dish, cased, enamel on yellow. Vase, green and white, ornamented. Cut-glass centre dish and stand, green.

[Many of the specimens here exhibited are of "cased glass." This term is applied to glass which has received one or more layers of coloured glass upon its surface when heated. The manipulation is extremely simple. A ball of colourless transparent glass is collected by the blower, which forms the body, upon which a hollow case of coloured glass is placed, and these are then welded together by heat. When the mass thus formed is blown into shape, and the exterior casing cut through, the appearance of a partly coloured and partly colourless glass is presented. In some instances, three or more casings of different colours are applied, each of which may be rendered visible by cutting through the overlying casings. The Portland and Naples vases were made by "casing." R. E.]

20 OLLER, F. & C., 44 Oxford Street, and Broad Street, Birmingham—Manufacturers.

Large fountain in cut crystal glass, 27 feet high. (At the intersection of the Main Avenue and Tempest.) This fountain is represented in the accompanying Plate.

Candelabra (a pair), in cut crystal glass, carrying 15 lights each, height eight feet, the property of the Queen.

Crystal glass candelabrum, supported on three griffins, in frosted glass.

Large table candelabrum, in crystal glass, with prismatic shaft.

Large lustres, mounted, with crystal prisms.

Busts of the Queen and H.R.H. Prince Albert, in frosted glass.

Busts of Shakespeare, Milton, Scott, and Peel, in frosted glass.

[These busts are produced in moulds, and the enamel or bright surface of the glass is removed by abrasion or grinding, their effect is pleasant, and would seem to indicate that larger works ought with propriety be undertaken of the same kind and material. Its indestructible character from atmospheric causes would likewise afford a medium for the production of statues and monumental erections superior to marble, which, in our climate, is speedily discoloured and corroded.—W. C. A.]

21 HARRIS, RICE, & SON, Islington Glass Works, Birmingham—Designers and Manufacturers.

Pressed and moulded glass tumblers, goblets, wines, sugar basins, butter-coolers, salt-cellars, honey-pots, door knobs, &c.

[By pressing is meant the mode of producing ornamentation on glass in moulds by pressure, and is effected by a press, plunger, and metal-mould, corresponding in internal shape to the article to be produced. The workman receives from a servitor a melted mass of glass, of which he drops a quantity into the mould, and disconnects it from the rod by cutting it off with a pair of scissors; the mould with the melted glass is then placed under the plungers, it is screwed down, which forces the glass into every marking. Minute fissures or cracks which are observable on the surface are removed by again heating the object made, which is now attached to a "punty," and causing it to revolve while the workman holds against it a piece of timber, the heat of which, when red, speedily fuses the whole of the exterior of the glass article to a uniform surface.—W. C. A.]

Specimens of various articles in flint glass, blown, cut, and engraved.

Ornamental glass, of various colours, opal, alabaster,

turquoise, amber, canary, topaz, chrysoprase, pink, blue, light and dark ruby, black, brown, green, purple, &c., coloured by oxides of copper and gold.

The articles made in these colours are gilt, enamelled, cut, and engraved, they consist of tazzas, liqueur services, compotiers, butter-coolers, sugar basins, toilet-bottles, claret jugs, goblets, water jugs, vases, &c.

[In gilding glass-work, the brown oxide of gold is used, which is ground up with a flux, and eventually with a fat oil. It is worked with a brush, and is then subjected to the heat of a muffle sufficient to melt the flux—it is allowed to cool, when it presents a dim appearance. Its brilliancy is given by burnishing with stone burnishers.—W. C. A.]

Specimens of colours, combined by casing or coating two, three, or even four colours on one another, the external coats are cut through by grinding the outer layer, and the inner ones are thus laid bare, and the desired effect is produced. These combinations of various kinds of coloured glass are applied to the same description of goods as in the former class.

[The operation of coating or casing on flint or other foundation with various colours is performed as follows: A globe of glass is gathered, of which the vessel is to be made: to this a portion of coloured glass already made concave is applied; when both are in a heated state, they are then pressed together, and a fracture horizontally would show a concentric ring of two colours. If more colours are desired, they are applied in the same manner. It will readily be understood that a cut with a convex surfaced stone will cut through the various coatings and expose the original body.—W. C. A.]

Specimens of threaded glass.—A kind of glass for which Venice is famous, and where it was for a long time almost exclusively manufactured.

22 CHANCE BROTHERS & Co., Glass Works, near Birmingham—Manufacturers.

Crown window glass, in tables, illustrating various kinds.

Sheet, or cylinder window glass, made of five different thicknesses, weighing respectively 13, 16, 21, 26, and 32 ounces per superficial foot. The building for the Great Exhibition is glazed with the 16-ounce glass.

[The process by which panes of sheet or cylinder window-glass, 49 inches long (the length of the panes in the building of the Great Exhibition) can be made, is very simple and beautiful. A quantity of molten glass having been collected on the extremity of the iron blower, is distended first into a spherical form; it is then heated in the furnace, and the glowing mass is swung round by the workman, who stands on the edge of a pit, until it becomes elongated to the required extent. The cylinder thus formed is then cut off at both ends, is cut through the middle, placed in a flattening furnace, where it is spread out upon a slab quite flat. After being annealed, the pane is completed.—R. E.]

Patent plate glass. The process of manufacture consists in grinding and polishing ordinary sheet glass, in such a manner that the thickness of the glass is considerably reduced. This glass is used for the windows of shops and dwelling-houses; for prints, pictures, looking-glasses, and other purposes.

Coloured window glass. In order to illustrate the difference between solid and pot-metal glass (which is coloured throughout its entire substance) and flaked and stained glass (which are coloured on the surface only), various specimens of coloured glass are combined together; the white ground in the flaked and stained glass has been rendered apparent by being embossed, by which the coloured coating is partially removed.

Glass shades, round, oval, and square.



CUT CRYSTAL FOUNTAIN. MESSRS. OSLER.



Apeley Pellatt & Co.'s Anglo-Venetian Gilt and Frosted Glass.

Anglo-Venetian gilt and frosted glass. These specimens are represented in the above cut.

Engraved glass vases and plates. Medical glass, vials, bottles, &c. Deck lights, lanterns, glasses, &c. Cameo incrustations.

Perfumery bottles, lapidary cutting, &c.

Models, and specimens of flint glass, with explanatory catalogue and illustrations.

Specimens of heraldic painting, &c., on china, designed specially for the exhibitor.

Bridal dejeuner service and tray, designed by Mr. Binns and ornamented with appropriate floral emblems. This service is represented in the following cut:—



Apeley Pellatt & Co.'s Bridal Tea Service and Tray.

[*Flint glass* (known on the Continent under the generic title of crystal), besides silica and alkali, contains a large proportion of oxide of lead, for the purpose of increasing its density and brilliancy, and of adding to its ductility whilst in the semi-fluid state.

The silica used is selected of an even and regular grain. The best flint glass is made from sand found at Alum Bay, Isle of Wight, and at Aylesbury, in Buckinghamshire. Before being used, it is well washed and dried, care being taken in the latter process to preserve it from carbonaceous matters.

The alkali potash is always used for the best flint glass, because soda invariably imparts to it a dull grey tint. The carbonate and nitrate of potash are employed in the

proportion of two-thirds of the former to one-third of the latter. In addition to these ingredients, no good flint glass can be made without oxide of manganese. Were all the other materials chemically pure, the glass would not be colourless, but invariably of a green tint, resulting from deoxidation. To prevent this, the oxide of manganese is used. The whole art of producing colourless glass lies in the proper regulation of the quantity of oxide of manganese, which must be augmented with the increased degree of heat to which the materials are subjected. This is a matter of some difficulty. A very small quantity of the oxide of manganese changes the tint of a large body of melted glass; one quarter of an ounce making an apparent difference in colour in 16 cwt. of glass.

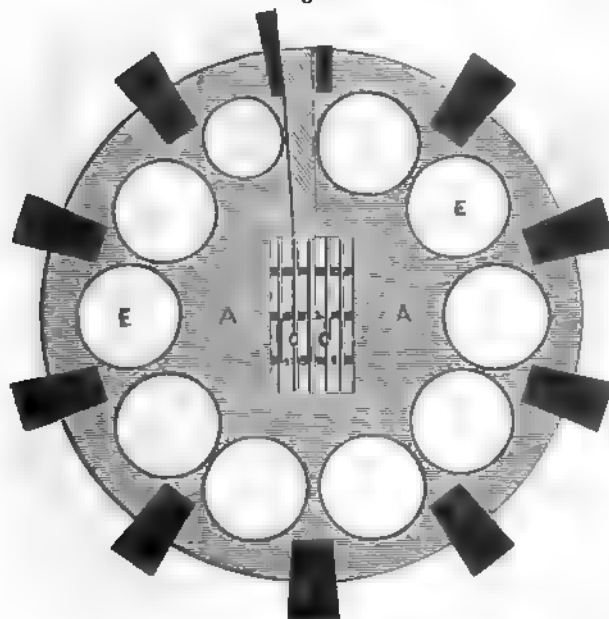
Batch (see specimen No. 5) is the term applied to the glass mixture. The usual formula for flint glass is one part by weight of alkali, two of lead, and three of sand; and the closer these proportions can be adhered to, the more compact, refractive, and homogeneous the glass. It frequently happens that, from insufficient fuel or a badly-constructed furnace, these proportions are departed from, more alkali being used in order to secure the fusion of the glass within a given time; but this deteriorates the quality of the glass. To the nature of the fuel in this country is to be ascribed the superior quality of English glass of every description; the molecular structure of which is closer, because it contains a larger proportion of silica than the foreign.

The materials, after having been carefully weighed, are intimately mixed, and upon this depends the homogeneity of the melted mass. The want of this quality is glass's greatest defect.

It is the want of homogeneity which prevents the manufacture of large achromatic lenses. The attempts to overcome this defect have been but partially successful, and it is to be feared that perfect homogeneity in glass will not be attained, as Dr. Faraday has lately shown that even water, upon becoming ice, often contains striae.

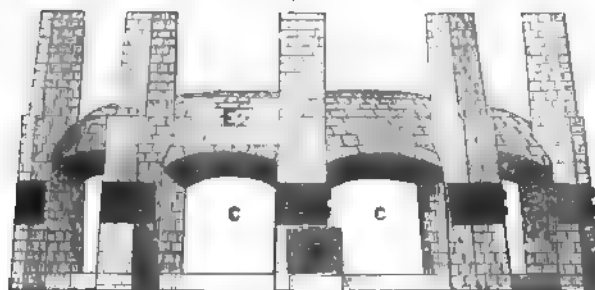
The crucibles for melting the glass mixtures (see model No. 6) are made of "fire-clay," a substance capable of withstanding intense heat for a long period, and of en-

Fig. 1.



Ground Plan.—AA, "Siege" or Floor of Furnace. BB, Pillars, which support the Crown. CX, Grate. D, Furnace Door. RE, Position of Crucibles.

Fig. 2.



Elevation.—A, Elevation of Siege above the Glass-house Floor. BB, Pillars above the Pillars. CX, Openings for Crucibles. D, Furnace Door. E, Reverberating Dome.

during the sudden contraction and expansion to which the crucibles are exposed. The Stourbridge fire clay which is generally used for this purpose, contains $6\frac{1}{2}$ parts silica, and $3\frac{1}{2}$ parts alumina. In forming the crucibles, great care is taken to expel all air-bubbles from the clay, as their expansion by the heat of the furnace would burst the crucibles. They are also very gradually dried and heated to the temperature of the furnace before being placed therein.

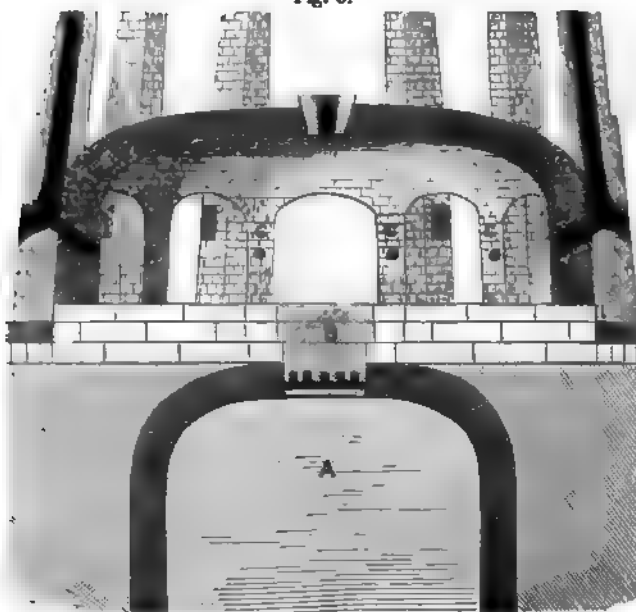
Flint Glass Furnace (see model No. 17).—In melting glass, it is not practicable to employ the usual artificial means of obtaining a draught of air, but a constant and regular supply is obtained by a long air tunnel passing below the furnace; the measure and force of the current of air depends upon the height and capacity of the chimney which carries off the smoke of the furnace, and upon the care with which all crevices around the furnace are luted up. The most desirable form of a flint glass furnace is the circular, and the number of crucibles of the ordinary size, consistent with economy of space, is nine, or at most ten. The preceding engravings, figs. 1, 2, and the following one, fig. 3, are illustrations of the glass furnace.

The materials having been intimately mixed as before described, are added to certain proportions of broken

glass. For the very best glass, virgin materials only are used, as every re-melting deteriorates the quality. During the melting, which occupies about sixty hours, the glass assumes different appearances. After the first ten or twelve hours, it appears a honeycombed mass, very white, and perfectly opaque (see specimen No. 8), in a few more hours the opaque appearances yield to a transparent body filled with thousands of air-bubbles (see specimen No. 9); the white colour now gives place to a light purple tint, produced by the oxygen given off from the oxide of manganese. As the melting continues, the purple tint gradually vanishes, the air-bubbles become fewer and larger, and at length quite disappear, when the glass is fined and ready for manipulation.

The tools used in the manipulation of glass are exceedingly simple. They are,—The blowing iron, No. 10; the workman's chair, No. 11; the procello, No. 12; the punty, No. 13, the shears or scissors, No. 14; the battle-dore, No. 15; the pincers, No. 16. Glass blowing somewhat resembles the operation of turning. Every article which can be turned by a simple lathe, can be produced in glass by blowing—other shapes require to be blown in moulds. The ordinary mode of annealing flint-glass is by placing the articles, so soon as made, in iron pans

Fig. 3.



Section of Elevation.—A, Air Tunnel below the Furnace. B, Fit of Furnace, with Grates below. C, Flue Holes, through which the Flame passes to the Flues above.

within a long low vaulted arch, having a strong fire at either side, at the end nearest the glass-house; a chimney at the other end causes a strong draught, by which the fire is drawn for some distance down the arch (see model No. 17).

Coloured glass is produced by adding, to the ordinary glass mixtures, the oxides or carbonates of certain metals, thereby causing such an atomic arrangement that one or more rays of a pencil of light are reflected. It is usual to ascribe one particular colour to a particular metal—say blue to cobalt, or green to copper; but Bontemps has shown that all the colours of the spectrum may be produced by any one of the ordinary metals, which he ascribed to the degree of heat to which the mixture or the colouring metal is subjected. Iron, copper, cobalt, manganese, gold, and uranium, are the metals used in colouring glass; and these bases, in combination with various proportions of oxygen, produce all the coloured glass in general use.

The ordinary shades of green (specimens No. 18) are the product of the oxides of iron and copper in different proportions, the yellow tints being due to the iron, and the blue tints to the copper. The carburet of iron gives a dull yellow colour (specimen No. 19); blue (specimen No. 20) is produced by the oxide of cobalt; purple (specimen No. 21) by the oxide of manganese; and the varieties of rose and ruby (specimens No. 22) by the oxide of gold; topaz (specimen No. 23) is given by the oxide of uranium; and emerald green (specimen No. 24) by the same metal, with the addition of a small quantity of copper. Glass is rendered opaque by the addition of arsenic; and the peculiar colour of the opal (specimen No. 25) is produced by the phosphate of lime. The quality of all colour in glass is the result of a proper degree of heat during the fusion of the materials; or, in other words, the prevention as much as possible of deoxidation during the process. A variety of colours upon the same article is produced by thin coatings of each being united in the manipulation; so that in the after-process of cutting, one colour or more is made to appear as may

be desired according to the depth of cutting; the difficulty in this process is the proper union of the several glasses—as, should any difference exist in what is known to glass-makers as the “temper of the metal,” the contraction or atomic arrangement during the annealing will vary sufficiently to cause fracture.]

III BINNS, RICHARD W., 58 Baker Street, Portman Square—Designer.

Miniature fountain for conservatory, with group of Parian statuary in the centre throwing water. The vase and pedestal of japanned slate.

Bridal and birthday *déjeûns* services, decorated with appropriate sentiments in the language of flowers.

36 PERRY & Co., 72 New Bond Street—Designers and Manufacturers.

Large cut glass chandelier for 144 candles, showing the style of glass-cutting of the 18th century, and modern improvements. A large portion of the glass is cut in what is termed “lapidary-cutting.” The candles are grouped in clusters in the lower tier, and in pendant groups from the upper tier.

37 DAVIES, GEORGE, 20 Wyndham Street, Bryanstone Square—Designer.

Painted marbles, opaque, on glass. Adapted for interior decorations, as panelling of all kinds, church altar work, ceilings, &c.

38 DAVIES, WILLIAM, 7 Broadley Street, Blandford Square—Designer.

Two opaque paintings on glass, subjects:—“Flowers and vase,” and “Angel rising from the clouds.”

39 KIDDLE, HENRY EDWIN, 4 Elder Street, Norton Folgate—Producer.

Specimens of marble on glass in one frame, adapted for altar-pieces, facias, plinths, and fancy cabinets, or other ornamental work.

40 FORD, DAVID, 4 James Street, St. Peter's, Islington—Designer.

Variegated specimens of “*Vitrum marmoratum*,” applicable to all flat surfaces, table tops, tablets, panelling, &c.; the colours are entirely protected from the action of the atmosphere.

JOHN WESLEY, *Bristol*—Manufacturer.
cut-glass window. Enamelled and em-
mental letters.
tish plate, for ornamental doors of halls,
rooms, public offices, &c.

& BROMLEY, *Liverpool*—Manufacturers.
s window, representing the figure of St.
as chimney-piece.

JAMES, 7 *Bridge Road, Lambeth*—
Designer and Inventor.
s door, a specimen of the application of
as to ornamental decoration.

DEE, 17 *Park Place, Clifton, near Bristol*—
Designer and Manufacturer.
le, in "vitrilapis," a new style of orna-
or decorative purposes.

FIELD, WILLIAM, *Colchester, Essex*—
Designer and Manufacturer.
e-frames, of original design; the gilding
ental work being completely protected.

NEY, 10 *Old Fish Street Hill*—Designer and
Importer.
nd engraved cup and cover, manufactured

K, RIXON, & DUNT, 1 *Cockspur Street*—
Manufacturers.
of cut glass, carrying 32 candles, the upper
anners composed of drops; the lower part
tion, a star, ornamented with cut pendants,
ig in an imbricated bottom.

UPES & Co, *Nicholas Street, Bristol*—
Inventors and Manufacturers.
-pipes, plain, jointed, and angular. Glass

rs, and those chiefly of an extraordinary
ty, are found to act upon the metallic pipes
ow generally employed. The attention of
ful of our engineers and chemists is now
e solution of the difficulty of conveying,
ed, the purest water from the most abundant
gst other schemes, the employment of glass-
worthy of consideration.—W. D. L. R.]

E. & J., 3 *Wymore Street, Cavendish Square*
—Producers.
model of a percolator.

, WILLIAM, 15 *Grafton Street, Fitzroy*
Square—Manufacturer.
of decorating and combining together glass
glass, for interior and exterior decorations;
le to church, library, and staircase windows;
ons, inlaid borders for halls, &c., being
nd waterproof.

AIR, C., 69 *Old Street, St. Luke's*—
Manufacturer.
1 glass, of a glasscutter's cutting tool.

M. L. A., 8 *Nelson Street*—Manufacturer.
-glass lamp reflectors.

RE, T. R., 19 *Haymarket*—Manufacturer.
l of a pump.

z, J., 33 *Clerkenwell Close*—Producer.
r ventilator.

J., 93 *Farringdon Street, City*—Patentee.
stal Venetian blind. This blind combines
tness, and durability, with utility, and can

be made in any design of coloured glass, with the bars
either perpendicular or horizontal; also can be fitted
either in fancy woods or electro-plated metal frames.

55 PETTIT, ROBERT, *Lewes*—Inventor.

A reliquary, or box, for small articles, made of slips of
glass.

60 CHANCE BROTHERS, & Co., *Glass Works, near*
Birmingham—Manufacturers.

Painted windows:—Leaded work, with medallions and
ornamental work of the early Gothic style; and in the
style of the fourteenth century, the figures being St. Peter
and St. Paul, St. George and Britannia. Armorial deco-
rations. A landscape and ornamental work, suitable for
a dwelling-house. Flowers painted and enamelled on a
large plate of glass, with borders; the glass having been
burnt in a kiln four times.

[The interest attaching to this beautiful art, and its
comparatively recent revival, calls for a few remarks. Its
antiquity is undoubted. Pliny speaks of "coloured
glasses made to imitate precious stones and gems;" and
painted glass in the church of Notre Dame, at Paris, is
described as early as the sixth century. To Sugerius,
abbot of St. Denis, in 1150, is probably owing the re-in-
roduction of painted glass into churches. How rapidly
his example was followed, is proved by the magnificent glass
of the thirteenth century, abounding on the Continent,
and partially existing in this country, the oldest examples
we have, being in Canterbury Cathedral. At first the
ornaments consisted of mere diapering; then rude repre-
sentations of saints and kings; then panels of various
forms, with subjects from the Testaments, on grounds of
blue or ruby, the intermediate parts filled with Mosaic
patterns, in rich colours, and the whole enclosed within
a coloured border. In later styles, single figures pre-
dominated, with flowing patterns of foliage, and, later
still, with canopies over them. Some of the finest works
are by French and Flemish artists; and this art was tra-
ditionally known to the early Florentine painter Cimabue,
who is said to have introduced it into Italy. Probably
our actual obligations are due to our Norman neighbours,
as a necessary appendage to their architecture. It has
been a popular notion that this art was lost to us; such is
not the case: it has indeed been dormant, but never ex-
tinct. The fine works exhibited this year—the produc-
tion of living artists—announce its revival.—T. H. W.]

61 BAILLIE, EDWARD, 12B *Cumberland Market, and*
118 Wardour Street—Proprietor.

Ornamental stained glass light, containing bust of Queen
Elizabeth, the royal arms, &c. Figure kneeling, Ernest
the Pious, Duke of Brunswick, an ancestor of the Royal
Family of Great Britain. Emblem of St. Matthew. Figure
of St. John the Divine, decorated style. Tudor badge.
Ornamented light, containing the Order of the Garter,
jewels, collar, star, &c. An original historical picture,
enamelled on glass, representing Shakspeare reading a
play to Queen Elizabeth and court. Small figure of Richard
Cœur de Lion. St. John the Baptist, perpendicular
style. Emblem of St. Luke. Norman light, with emblem
of St. John. Various specimens of decorated lights,
emblems, and arms.

62 POWELL & SONS, *Temple Street, Fleet Street*—
Manufacturers.

Specimens of painted and patent pressed glass for
windows.

63 HOLLAND, WILLIAM, & SON, *St. John's, Warwick*—
Designers and Producers.

Stained glass of the twelfth century, illustrating scrip-
tural events.

Stained-glass window in the decorated style, for Wel-
lesbourne church, Warwickshire.

Stained glass of the fifteenth century, perpendicular style.

Stained glass window, in the perpendicular style, for Shuckburgh church, Warwickshire.

Stained glass in the Elizabethan style, in which are emblazoned the arms of the sovereigns of England, from Queen Elizabeth up to the present period.

64 BURY, TALBOT, 50 Welbeck Street, Cavendish Square—
Designer and Producer.

Stained glass. Compartments of a window for an ecclesiastical building of the second pointed period.

65 O'CONNOR, MICHAEL and ARTHUR, 4 Berners
Street—Designers and Producers.

Painted glass windows—East window—triplet—for Guiana. Scriptural subject in centre; on either side, figures of St. George and St. Patrick. Arms of England and other heraldry.

Window for Southwell Minster, Notts. Subjects—"Healing the Sick," "Raising the Dead," and "Preaching the Gospel to the Poor."

Salisbury Cathedral—Early pointed window. Subjects—History of Cornelius in three medallions; figures of Michael the Archangel and St. George of England; Grisaille ground.

Memorial to the officers and men of the 62nd Regiment, who fell in the Sutlej campaign.

St. John's Cathedral, Newfoundland;—"St. John the Baptist in his childhood," and his mother.

Some specimens of rich mosaic back grounds, antique figures, &c.; (one of the figures—Percy, first Earl of Northumberland).

66 The ST. HELENS CROWN GLASS COMPANY,
St. Helens, Lancashire—Manufacturers.

A window composed of national emblems. Designed by Luke Limner. This window is represented in the accompanying Plate 90.

Statue window, with figure for a niche in classical drapery.

Window, in colours, with subject—"Michael casting out the great Dragon."

Statue window, with Gothic figure for a niche.

Ornamental window, with Grecian ornament.

Each window is a single plate of glass.

[These windows, executed in a single piece of glass, are deserving of notice, as presenting a specimen on the largest scale of applying design by heat to glass.]

67 HOWE, J. G., 4 Cumberland Place, New Road—
Designer and Executor.

Stained-glass window, after the style of the 13th century, representing, in three medallions, celebrated Scripture subjects.

68 GAUNT, T., 4 Springfield Place, Leeds—Designer.

A painted window; subject, the Four Evangelists. The process employed in preparing the specimen presents a cheap and durable method of producing windows for churches.

69 HEDGELAND, GEORGE, Grove Place, Lisson Grove—
Designer.

Stained and painted glass of the decorated period of Gothic architecture.

70 HALL & SON, Bristol—Manufacturers.
Ornamental leaded stained-glass window.

71 TOMS, JOHN, High Street, Wellington, Somerset—
Manufacturer.

Painted window; subject—Mary Magdalen; generally adapted from a picture by Timotio Viti.

The novelty consists in the adaptation of the natural forms of plants to the decorative portions of a mosaic glass painting.

72 GIBSON, J., 89 Clayton Street, Newcastle-upon-Tyne—
Designer.

Painted windows: in black and white (*en grisaille*), of early Norman character, with interlacing fillets of ruby and green, forming geometrical tracery, with an enamelled border; a free imitation of a decorated window in St. Martin's cum Gregory, York; early Norman, in the centre, "the Nativity," and other subjects; representing St. Margaret (after John van Eyk) on a pedestal; of early Norman character, consisting of roundlets, with sacred subjects; and of the decorated style, with enamelled canopies and niches, containing the figures of St. Agnes and St. Helena, on pedestals, &c.

73 WAILES, WILLIAM, Newcastle-upon-Tyne—
Designer and Manufacturer.

Windows of perpendicular and decorated periods of architecture.

Part of window in decorated style, for east front of Ripon cathedral; figure in perpendicular period.

Part of window in decorated period, with *grisaille* ground.

Norman memorial window, with *grisaille* ground; decorated window, with *grisaille*.

Norman window; part of window in transition style, from Norman to early English.

Specimens of early English *grisaille*.

Parts of window for St. James's Church, Piccadilly, London—cinque-cento style.

Designs of windows, in various styles.

74 CLAUDET & HOUGHTON, 89 High Holborn—
Producers.

Painted glass for three compartments of a window, viz., the figures of St. Peter, St. Paul, and the Saviour, with architectural canopies and back grounds, all from original designs.

75 GIBBS, ISAAC ALEXANDER, 2 Harwood Place, Camden
Town—Designer and Producer.

Norman window. Subjects taken from the life of St. Peter, treated in strict accordance with glass of the Norman period.

Decorated Gothic compartments—Figure of St. John, and other Scripture subjects.

Four compartments of highly-finished pictorial glass, forming a Scripture subject.

76 MAYER, GEORGE, 314A Oxford Street—Designer
and Painter.

A stained-glass window, representing Saint George and the dragon, standing under a Gothic canopy of the decorated period.

77 JACKSON, E. & W. H., 315 Oxford Street—
Proprietors.

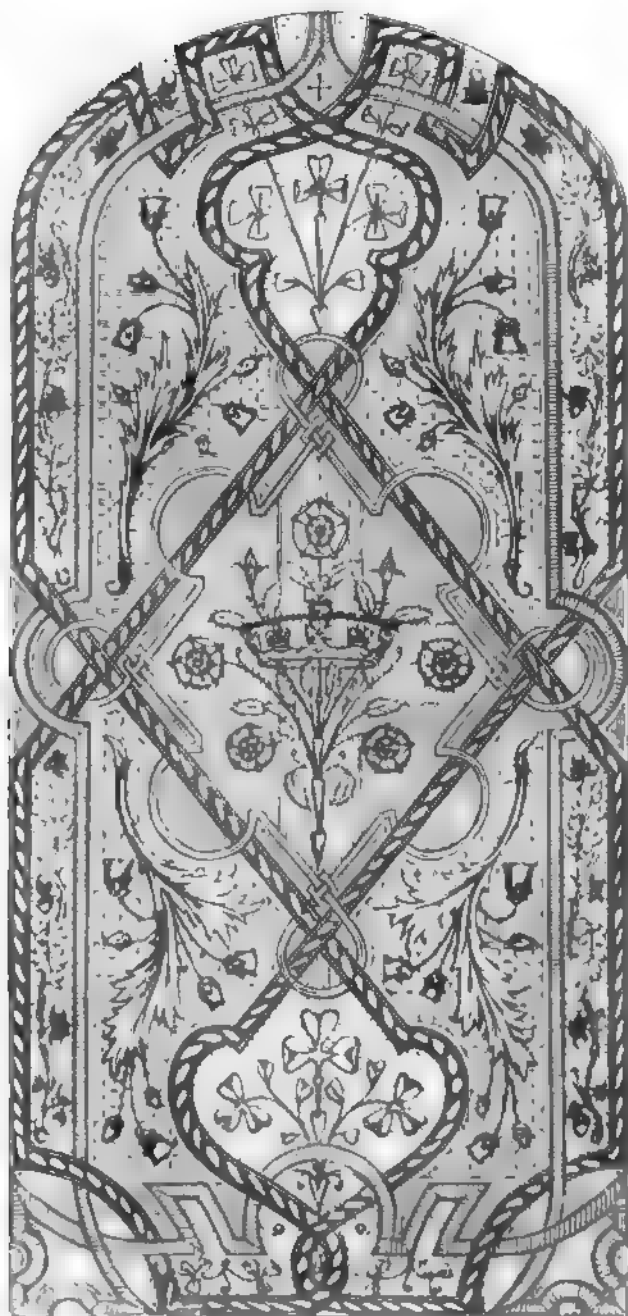
The Royal Arms of England, painted on glass.

78 BALLANTINE & ALLAN, George Street, Edinburgh—
Designers and Manufacturers.

Stained glass, Elizabethan style. Window of entrance hall, Glenormiston. The Glenormiston estate is held direct from the Crown, on condition that the proprietor, when required, shall present the sovereign with a red rose on the festival of St. John. The pictorial part of the window represents the ceremony which, according to local tradition, was performed in 1529, on the occasion of the Scottish monarch passing through Peeblesshire. An heiress of the sixteenth century, supported by a knight, presents the sovereign of the period with a rose. In the background, a retainer displays the banner of St. John. In the upper corners, the legend, "He that tholes o'ercomes."

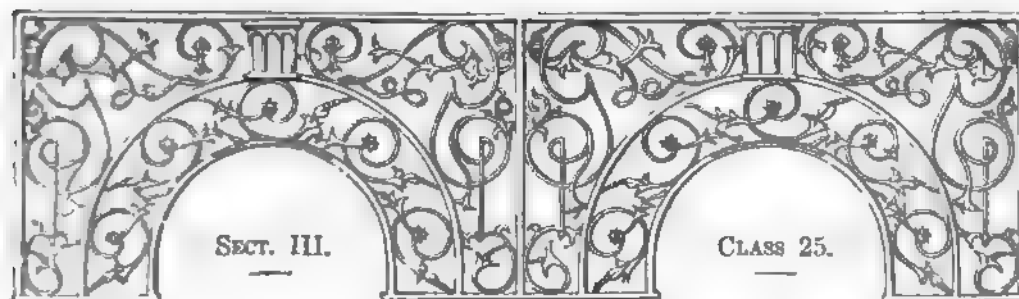
Stained glass, decorated style: central compartment of chancel window, St. Matthew's, Liverpool, figure of the Saviour with canopy and pedestal.

Panels of ornamental glass, decorated style, and Oriental view.



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WINDOW CONTINUED OF NATIONAL EMBLEMS, DESIGNED BY LURE LINNEN,
AND EXECUTED BY THE ST. HELENS PLATE GLASS COMPANY.



CHINA, PORCELAIN, EARTHENWARE, ETC.

INTRODUCTION.

THE Class to which attention is now directed is one which wears a peculiarly interesting character in this country. To no single individual are those manufacturers who practise the ceramic art in Great Britain indebted so much as to Josiah Wedgwood, whose reputation has become universal. The finer kinds of earthenware which, previous to his era, were made with but indifferent success were, by his efforts, brought to a degree of excellence which has created for them a market almost all over the world. In addition, he produced at the works, founded by him at the village also built by him in Staffordshire, and called Etruria, various kinds of ware applicable to many different purposes. Among these were porcelain biscuit, white and black, a terra cotta, somewhat resembling porphyry in its character, Queen's ware, a variety adapted for table use, and some fine descriptions of porcelainous biscuit. In other countries, the finer descriptions of ceramic productions are produced of a greatly superior character to ours, as at Dresden and Sèvres, but in no other country but Great Britain, is the common earthenware for the ordinary purposes of life, produced either in such quantities, or of such a quality and degree of economy in price.

This Class embraces the following sub-classes:—A. Porcelain, Hard; B. Statuary Porcelain, as Parian, Carrara, &c.; C. Tender Porcelain; D. Stoneware, glazed and unglazed, as Ironstone, or Stone China, Brown Ware, Chemical Utensils, &c.; E. Earthenware of various descriptions, white and coloured; F. Terra Cotta for Vases, Encaustic Tiles, Tessera, Bricks, &c.; G. Ornamented or Decorated, as articles ornamented on Biscuit or the glaze; H. Includes ceramic productions chiefly applicable to architectural purposes.

About sixty Exhibitors appear to represent this Class in the Exhibition. Their position in the Building is in the North Transept Gallery. In this place, the various kinds of ware are arranged on tables and in cases, and furnish material for attentive consideration.

In Class I, several Exhibitors will be found who show the raw material employed in this manufacture, and largely developed naturally in Cornwall, from the decomposition of the rocks of that district. In this Class, the variety of forms communicated generally by the simple but effective instrumentality of the potter's wheel to this material, and its beauty and fitness for use in a perfect state, form a subject for interesting thought. Wedgwood made the first attempt to communicate beauty of form to ordinary objects, and his example is being largely copied in our own time. Of late the application of porcelain to statuary has rapidly extended, and a number of beautiful objects in statuary porcelain are exhibited. Many difficulties of manipulation attend the production of these objects, arising out of the shrinking of the clay when burnt; but, notwithstanding, great delicacy and sharpness of outline are preserved, in the statuette, and other interesting specimens of different Exhibitors. A curious reproduction of objects, after the antique, arranged in a model of a tomb, afford an excellent illustration of the facility with which these objects can now be manufactured, and so closely resembling the ancient models as to be scarcely distinguishable from them.

The district comprised within that known as the "Staffordshire Pottery," is the largest producing locality of this description of manufacture. The making of earthenware has been conducted in this district for nearly six centuries. Many villages, containing large works devoted to this manufacture, are now thriving here, and supply vast quantities annually of cheap and excellent ware for home use or for exportation. At Stoke-on-Trent, also, extensive works are carried on. The china of Worcester has long been celebrated for its beautiful quality, and is represented in this Exhibition. Outside the western extremity of the Building, various large objects in common brown-ware, such as pipes, condensors, jars, &c., are arranged.—R. E.

1. **MISTON, H., & Co., Stoke-on-Trent, Staffordshire—Manufacturers.**

1. *Perfected Sèvres*, consisting of assiettes montées, round, oval and triangular baskets, jelly stands, wine coolers, green bowls, salt cellars, elevated and low compotes, perforated china, in turquoise and gold, painted Cupids, flowers and fruit, with Parian figure and ornamental supports, ornaments, gilt and chased, and candlesticks in Parian, gilt, and plates of various patterns.

For this Vase.

2. Large vase, with perforated ornaments, decorated, and finished with or mottled mountings.

3. Pair of Parnassus vases, being a combination of china and Parian, the china in mazarine and gold, and the bas relief, Apollo and the Muses, in Parian.

4. 3 Vases, a pair, bleu de roi, and a pair Sèvres green, the grounds, with painted flowers, and various figures, gilt.

5. * Pair of vases, with foliage handles, green and gold, and painted festoons of flowers.

6. * Pair of vases, with perforated chain handles, bleu de roi, with painted flowers, and gilt.

7. * Set of three jardiniers, green and gold ribbons, and painted groups of flowers.

8. * Pair of festoon vases, green ribbons, pink and gold, spotted ground, painted flowers and birds, gilt.

9. * Pair of egg-form vases, turquoise ribbons, painted wreaths of flowers and laurel on one side: groups of flowers on the reverse, and gilt.

10. * Pair of round perforated vases, blue and gold spotted ground, painted festoons, and wreaths of flowers tied with ribbons and gilt.

11. * Pair of vases, turquoise and painted wreaths of flowers, with festoons of oak, laurel, &c., gilt.

12. * Rope festoon vases, mazarine and Sèvres green grounds, and gilt.

13. * Pair of Harewood bottles, mazarine ground, and gilt.

14. * Pair of jardiniers, mazarine ground, painted wreaths of flowers, &c., gilt.

15. * Pair of husk vases, mazarine stripes, and gilt.

16. * Pair of rope festoon vases, Sèvres green ground, painted festoons of oak and laurel, and wreaths of flowers, bird in compartment, and gilt.

17. * Pair of beaded vases, turquoise ground, and painted flowers, gilt.

18. * Pair of beaded vases, with a turquoise ground, painted pink, Cupids in compartments, and gilt.

Porcelain Inkstands, Seaux, Card Trays, &c.

19. Inkstand, green and gold diamonds, painted birds, in compartments, and roses in small compartments, gilt.

20. Cross-bar inkstand, turquoise cross-bars, painted wreaths of flowers, crossing turquoise, and gilt.

21. Inkstand, Sèvres green cross-bars, painted wreaths of flowers, and gilt.

22. Pair of wine coolers, mazarine ground, painted Sèvres groups, in compartments, and gilt.

23. Pair of seaux, turquoise diamonds, painted birds in compartments, and roses in small compartments, and gilt.

24. Pair of seaux, mazarine ground, painted flowers and fruit in compartments on one side, and birds on the reverse, gilt.

25. Pair of seaux, turquoise and stripes, painted flowers and fruit in compartments on one side, and birds on the reverse, and gilt.

26. Pair of seaux, Cupids painted in pink, and gilt.

27. Card tray, painted landscape, figures and cattle, gilt.

28. Small hexagon card tray, Sèvres green ground, painted wreaths of flowers, tied with ribbons, and gilt.

29. Oval tray, painted sprays of wild flowers, and gilt.

30. Perforated flower stand, on claws, turquoise and gold, and painted flowers.

31. Pair of candlesticks, with figures in the costume of the time of Louis XV.

Porcelain Cups and Saucers, Dessert Plates, Dinner Plates, &c.

32. A variety of tea-cups and saucers, dessert and dinner plates, and déjeuner sets.

Parian Figures, Vases, &c.

33. Equestrian figures of Amazon (after Fauchère), and Theseus; two groups of Children with Goat.

34. Statuettes:—Dorothea, Miranda, Clorinda, Una and the Lion, Triton and Nautilus, the Babes in the Wood, by John Bell. The Infant Neptune, by H. J. Townsend. The Distressed Mother, from the statue by Sir R. Westmacott. Cupid indignant, with pedestal, and festoons of raised flowers. Temperance, Flora.

35. Groups:—Love restraining Wrath (Beattie); Naomi and her Daughters-in-law; the Flight into Egypt.

36. Statuettes:—Mercury (after Thorwaldsen); Shakspeare, by John Bell; Sir Robert Peel; the Prince of Wales.

37. Busts of Michael Angelo and Raphael, by John Bell.

38. Statuettes:—Ariadne on a Panther (after Daneker); Atala and Chactas.

39. Candlesticks, with figures in the costume of the time of Louis the Fifteenth.

40. Flower stand, group of hunters, with perforated basket.

41. Set of chessmen, by John Bell. 42. Chimney-piece, in Parian. 43. Ewers with stands, after Cellini.

44. Vases, with embossed festoons and ornaments, gilt. 45. Roman Cippus vases, embossed birds and foliage, and turquoise ground. 46. Sneyd vase, with olive-branch embossment. 47. Pair of vases; one with an embossed ornament of the oak, and the other of the ivy. 48. Pair of Piranesi vases. 49. Perforated flower-stand, with festoons of raised flowers.

50. Pair of Pompeian cups. 51. Pair of cups, Sutherland and companion.

52. Group of raised flowers, with a Cupid in the centre, and a twisted dolphin support.

53. Dolphin tazzas. 54. Brackets with figures. 55. Pair of brackets, after Michael Angelo. 56. Pair of eagle brackets. 57. Pair of mask-head brackets. 58. Candlesticks, and pianoforte candlesticks, in the style of Boule, gilt. 59. Variety of jugs, butter coolers, &c.

Earthenware Fire-place Slabs.—Earthenware enamelled Tiles, Flowerpots, &c.

60. A variety of fire-place slabs, enamelled tiles, flowerpots and stands, and garden seats.

61. Tea urn and tea-pot stands.

62. Earthenware dinner plates, ewers and basins, enamelled and printed.

63. Series of chemical utensils, in hard porcelain.

64. Raw materials used in the manufacture and in the ornamenting of porcelain and earthenware.

65. Fired specimens of colours.

66. Earthenware, in the different stages of its manufacture.

Tiles, Terra Cotta, and Vases, &c., in imitation of Majolica Ware.

67. Encaustic and other tiles, for pavements, and for lining walls.

68. Pillars of enamelled bricks.

69. Large vase, designed by Baron Marochetti, in terra cotta. The figures in bas-relief, represent Neptune and Amphitrite on one side, and Sirens restraining Boreas on the other.

70. Flowerpots in terra-cotta, with Parian bas-reliefs (after Thorwaldsen), representing the four Seasons, introduced in panels.

71. Figure of Galatea with Cupid and a dolphin, for a conservatory fountain.

72. Winecoolers of porous ware; ornamented with views, and festoons of vine leaves and grapes, in buff; with a wreath of vine leaves, &c.; with festoons of vine leaves and grapes, and coloured in the majolica style; with wreath of vine leaves, &c., and coloured.

73. Roman Cippus vases, dark-blue ground, and coloured foliage, &c.

74. Variety of flowerpots and stands, coloured in the majolica style, &c.

[The clays used by the potter are those of Cornwall, Devon, and Dorset. The Cornish is the best quality, and is technically termed by potters "China clay;" it enters very extensively into the composition of the best kind of ware. It is the decomposed felspar of the granite, and is prepared by the clay merchants themselves in Cornwall, prior to its being sent to the potteries. Huge masses of white granite abound in Cornwall, which is in some parts found partially decomposed; and when this is the case, the mineral is raised and prepared for the potter's use, it having been discovered by Mr. Cook-

* The cases, &c., marked with an asterisk are all after old Sèvres models, with new decorations after the old Sèvres style.

Plymouth, in 1765, that it furnished the true also the "petunsee" of the Chinese. Following is the method of preparation:—The ing been broken up by a pickaxe, is laid in a running water: the light argillaceous parts are ed off and kept in suspension; the quartz and g separated are allowed to subside near the re the stone was first raised. At the end of lets are a kind of catchpools, where the water arrested, and time allowed for the pure clay ; it is charged to form a deposit, which being se water is drawn off; the clay is then dug up blocks and placed upon a number of strong

shelves called "linnees," so fitted as to allow a free circulation of air, in order that the clay may be properly dried. Thus prepared it is extremely white, and, when crushed, forms an impalpable powder. It is forwarded to the potteries under the name of china-clay.—T. B.]

2 COPELAND, WILLIAM TAYLOR, *Stoke-upon-Trent, and 160 New Bond Street—Manufacturer.*

Works in porcelain statuary:—

Group of Ino and the Infant Bacchus, by J. H. Foley, R.A., from the original model in the possession of the Earl of Ellesmere. This group is represented in the annexed engraving.



Copeland's Porcelain Group, "Ino and Bacchus."

of The Prodigal's Return, by W. Theed. This presented in the accompanying Plate 35.

by W. C. Marshall, R.A. See Milton's Comus. atherd, by the late J. R. Hyatt, R.A., from al marble in the possession of the Duke of l. Venus, by John Gibson, R.A.

by W. Theed, from the original marble. ian statuette of Emanuel Philibert, Duke of the Baron Marochetti. Rebecca, by W. Theed. ette is shown in the accompanying Plate 36.

ian Girl and the Nubian Girl, by Cumberworth. f Juno, life size, from the antique. The Astra- rs. The Girl with Scorpion.

ce, by J. H. Foley, R.A., executed for the Art London.

is, by John Gibson, R.A., executed for the Art London.

acing Girl Reposing, by W. C. Marshall, R.A., or the Art Union of London.

odiva, by J. P. M'Brade, executed for the Art Liverpool. See Tennyson's Godiva

ter Scott; reduced copy by John Steel, R.S.A., original colossal statue on the Calton Hill, for the Edinburgh Association for the Promo- Fine Arts.

of Graces, and group of Cupids, as Kanephoroi.

the Princess Alice, as Spring.

the Princess Royal, as Summer

the Prince Alfred, as Autumn.

the Prince of Wales, as Winter

The above illustrative series from the original models, executed by Mrs. Thorneycroft, for the Queen.

"The Bride" and "The Sea Nymph."

Group of "Paul and Virginia," by Cumberworth.

Sir Robert Peel, by Westmacott.

Lord George Bentinck, by Count D'Orsay.

Jenny Lind, by Durham. Shakspeare.

The Lady Clementina Villiers, by M'Donald.

H.R.H. the Princess Helena, by Mrs. Thorneycroft.

Duke of Wellington, by the Count D'Orsay.

Duke of Sutherland, by Francis.

Pair of Cellini vases and pedestals.

Group of "The Return from the Vintage," consisting of seven figures.

[The articles under the head of Statuary Porcelain, including Parian, Carrara, &c., are produced by "casting" As the most direct method of illustrating this process, let us suppose the object under review to be a figure or group, and this we will assume to be two feet high in the model. The clay, which is used in a semi-liquid state, about the consistency of cream, and called "slip," is poured into the moulds forming the various parts of the subject (sometimes as many as fifty). the shrinking that occurs before these casts can be taken out of the mould, which is caused by the absorbent nature of the plaster of which the mould is composed, is equal to a reduction of one inch and a half in the height. These casts are then put

together by the "figure-maker;" the seams (consequent upon the marks caused by the subdivisions of the moulds) are then carefully removed, and the whole worked upon to restore the cast to the same degree of finish as the original model. The work is then thoroughly dried, to be in a fit state for firing, as, if put in the oven while damp, the sudden contraction consequent upon the great degree of heat instantaneously applied, would be very liable to cause it to crack: in the process it again suffers a further loss of one inch and a half by evaporation, and it is now but one foot nine inches. Again, in the "firing" of the bisque oven, its most severe ordeal, it is diminished three inches, and is then but eighteen inches high, being six inches, or one-fourth less than the original. Now, as the contraction should equally affect every portion of the details of the work, in order to realize a faithful copy, and as added to this contingency are the risks in the oven of being "over-fired," by which it would be melted in a mass, and of being "short-fired," by which its surface would be imperfect, it is readily evident that a series of difficulties present themselves which require considerable practical experience successfully to meet.

The moulds are made of plaster of Paris, which, when properly prepared, has the property of absorbing water so effectually that the moisture is extracted from the clay, and the ware is enabled to leave the mould, or "deliver" with care and rapidity. Prior to use, the plaster (gypsum) is put into long troughs, having a fire running underneath them, by which means the water is drawn off, and it remains in a state of soft fine powder; and if its own proportion of water be again added to it, it will immediately set into a firm compact body, which is the case when it is mixed to form the mould.

The following are the degrees of temperature in which the different branches work:—

Plate-makers' hot-house . . .	108° Fah.
Dish-makers' hot-house . . .	106 "
Printers' shop	90 "
Throwers' hot-house	98 "

The branches against which the temperature of the "hot-house" is placed, require that heat for drying their work and getting it off the moulds. The outer shops in which they work may be from five to ten degrees less. —T. B.]

Variety of vases, garden pots, and articles of ordinary use.

Ancient font, from the original in Winchester Cathedral.

The Portland jug. Lily of the valley jug. The acanthus garden vase.

Fine porcelain:—

A vase of Etruscan form, with chased and burnished gold ornaments, on a blue ground, decorated with floral wreaths, enamelled, in colours, &c., with pedestal 40 inches high.

A great variety of ornamental vases, chased and gilded, with various designs in enamels and otherwise.

Verulam bottles: ribbon wreath, and group of flowers; turquoise ribbon, and group of flowers; and gold lattice.

Large tripod, for flower-stand, blue ground, decorated in chased and burnished gold.

The Dove Tazza, and pedestal. The birds and embossments in solid gold, chased, turquoise ground, and floral wreath, &c. Another with royal blue grounds, the details of ornament in gold and silver.

Pair of vases, rose ground, chased gold panels, with musical emblems and flowers.

Pair of Armada bottles, with jewel design, in enamels and gold, on royal blue ground.

Large vases, 28 inches high, by 27 inches wide, royal blue ground, and Greek ornaments in chased and burnished gold.

Warwick vase, 24 inches high, and 28 inches wide, royal blue ground, in chased and burnished gold.

Pelican pedestal, 52 inches high, decorated in blue, buff, and gold.

Pair of ice-pails, with wreath of the vine, enamelled; a pair, turquoise ground, gold panels of flowers and fruit; and a pair cyclamon ground, chased, gold design, ornamented with jewels and vignettes.

Pair of vases, with wreaths of orchidaceous plants.

Variety of other vases, jardinières, flower-stands, &c.

Circular plateau for table (fine porcelain), turquoise grounds, gold ornaments, chased and burnished, with vignettes of flowers, Watteau subjects, &c.

Porcelain table, cyclamon ground (new tint), with chased gold panels, Watteau vignettes and wreaths, and groups of flowers. Another, with borders in chased and burnished gold, on blue ground, and festoons of convolvulus.

Circular plateaus for table tops, including design, after Raphael, on gold ground. Ribbon wreath, ornamented with jewels and garland of jasmine. Blue panels, chased gold ornaments, groups, and wreaths of flowers and vignette landscapes. Chased and burnished gold borders, and a floral wreath of the natural size. A cyclamon ground, scroll border in chased gold with a landscape in the centre.

Various panels of fine porcelain, enamelled and gilt, for urn and flower-stands.

Panels with cyclamon ground, with a Watteau vignette and gold panels chased and burnished. Blue panels with turquoise ground and design in similar style.

Several panels of various designs, intended to be mounted in furniture, &c. Semi-porcelain slabs for the top and the door panels of a dressing-table, with rustic trellis and wreath of ipomeas.

Pair of slabs, in the Pompeian style; the figures in the centre panel are on blue ground; the borders are enamelled and gilt. Another pair of similar design, with blue, white, and chocolate grounds.

Slab 44 inches by 24 inches for a console or dressing-table; it has Greek borders in blue and white; the group of figures is from Flaxman: it is furnished with outlines and gold enrichments. Another Pompeian design, black and fawn.

Pair of slabs, with rustic panels and trails of sweet pea, &c. Another pair, in chased and burnished gold on blue and chocolate grounds.

Specimens of slabs for shutter and Dado panels, executed for Her Grace the Duchess of Sutherland.

Specimens of slabs with pink ground, gold fleur-de-lis, and silver diapering—with blue ground, similarly ornamented—with cyclamon ground, the design being in chased and burnished gold. Slab with renaissance design, embossed in chased and burnished gold on blue ground. An embossed scroll, chased and burnished gold, on white and on cyclamon grounds. Fleur-de-lis in silver, on blue ground with gilt borders; and fleur-de-lis in raised gold on cyclamon ground. A slab 50 inches by 28 inches, enamelled and gilt.

A variety of coving-slabs for fire-places:—A jewel design, coloured in enamels and gold on a blue ground. A cyclamon ground of similar style. Lavender and green styles, with buff ground and chased gold panels. Raphaelesque design, with a foliated scroll on the top and bottom panels, enamelled in tints, with a group of figures in the centre panel, on a black ground with gold enrichments. Mosaic design, enamelled and gilt. Mosaic design on gold grounds, the figures on blue, and the border enriched in chased and burnished gold. Pompeian style with white borders, and coloured figures on red ground. Alhambresque, enamelled design. Etruscan style in black and fawn, and blue and white. Grecian style in white and gold. Gold line panel, with ornamented corners in burnished gold. An indented Moresque design, emblazoned in colours and gold. Indented Moresque designs, variously enamelled and gilt. Wreaths of flowers

on white. Studies of orchids. A rustic panel, with trail of ipomeas. A pink and buff style, with chased gold panel and group of flowers. Several other slabs and panels of various designs, &c.

Specimens of fine porcelain. Dessert plates with scroll borders in chased and burnished gold on a blue ground: in the inner and outer borders the royal initials and coronet are introduced; and the royal arms in the centre. A jewel design on cyclamon ground (double tint), emblazoned in enamels and gold, with the arms of His Grace the Duke of Sutherland. A crimson ground, containing the arms of His Grace the Duke of Wellington. Cyclamon ground, with the arms of His Grace the Duke of Devonshire.

Dessert plates with borders in raised and burnished gold on blue ground, with wreaths of roses, &c.; also a pierced centre-piece and comports in similar style.

Specimens of dessert plates, with an Alhambresque border in raised and chased gold on various coloured grounds, with Spanish views in the centre. Chased and burnished gold panels and rosette, with vignettes of humming-birds; and royal blue and turquoise grounds.

Specimens of plates ornamented with various wreaths of flowers. The border of jewels in coloured enamels, and gilt on green, rose, and royal blue grounds. Chased gold panels, with groups of fruit and wreaths of flowers; the grounds being royal blue, green, rose, and blue. A perforated border, with raised gold panels on cyclamon, and other grounds; there are wreaths of flowers and musical emblems in the centre.

Dessert plates, the ground of a green colour; central panels of birds, fruit, and flowers. Chased gold panels, with groups of flowers, birds, and a cyclamon ground.

Specimens of Gothic pierced plates, with a chased gold border, and a wreath of blossoms and fruit in the centre.

Dessert plates containing studies of various fruits in the centre; the border consists of the foliage and blossom pertaining to each fruit. A blue ribbon wreath enriched with jewels enamelled in colours and gold, and a wreath of white jasmine. A cyclamon and yellow jasmine. A turquoise and rose wreath. A ribbon design, on a raised gold diapered ground, with a wreath of flowers, &c. An embossed design, variously enamelled and gilt. A royal blue panel, with chased gold ornament, and groups of fruit and flowers. Example of the renaissance style, on blue and French white grounds, gilt and chased with flower groups and wreaths on chocolate ground, with the royal initials in the centre. A cyclamon and crimson ground, with flowers in gold, and the initials of His Grace the Duke of Sutherland in the centre.

Several dessert samples of various designs enamelled, painted, and gilt.

[Enamel colours are metallic oxides incorporated with a fusible flux: gold precipitated by tin furnishes the crimson, rose, and purple; oxides of iron and chrome produce reds; the same oxides yield black and brown, also obtained from manganese and cobalt; orange is from oxides of uranium, chrome, antimony, and iron; greens from oxides of chrome and copper; blue from oxides of cobalt and zinc. The fluxes are borax, flint, oxide of lead, &c. They are worked in essential oils and turpentine; and a very great disadvantage under which the artist labours is, that the tints upon the palette are in most cases different to those they assume when they have undergone the necessary heat, which not only brings out the true colour, but also, by partially softening the glaze and the flux, causes the colour to become fixed to the ware. This disadvantage will be immediately apparent in the case where a peculiar delicacy of tint is required, as in flesh tones, for instance. But the difficulty does not end here, for, as a definite heat can alone give to a colour a perfect hue, and, as the colour is continually varying with the different stages of graduated heat, another risk is incurred—that resulting

from the liability of its receiving the heat in a greater or less degree, termed “over-fired” and “short-fired.” As an instance of its consequence we will cite rose colour or crimson, which, when used by the painter, is a dirty violet or drab; during the process of firing it gradually varies with the increase of heat, from a brown to a dull reddish hue, and from that progressively to its proper tint. But if by want of judgment or inattention in the fireman, the heat is allowed to exceed that point, the beauty and brilliancy of the colour are destroyed beyond remedy, and it becomes a dull purple. On the other hand, should the fire be too slack, the colour is presented in one of its intermediate stages, as already described; but in this case extra heat will restore it. Nor must we forget to allude to the casualties of cracking and breaking in the kilns by the heat being increased or withdrawn too suddenly, a risk to which the larger articles are peculiarly liable. These vicissitudes render enamel painting in its higher branches a most unsatisfactory and disheartening study, and enhance the value of those productions which are really successful and meritorious.—T. B.]

Examples of fine porcelain:—A variety of cups and saucers of different forms and designs, enamelled and gilt. Examples of cabinet cup-stands, in various styles of decoration. Specimens of printing in gold.

Examples of door furniture, finger-plates, knobs, &c.

Soup-tureen, with a border in the Greek style on blue and chocolate grounds, chased and burnished gold, &c. A sauce-tureen; a covered dish and plates. Soup-tureen, with a honeysuckle border in chased and burnished gold on blue. A sauce-tureen; a covered dish and plates. Various specimens of table-ware in different styles of ornament. A collection of ewers and bowls in fine porcelain, of various enamelled and gilt designs, for toilet services.

Ewer and bowl, ornamented with wreaths of fuschia. Executed for Her Grace the Duchess of Sutherland.

Specimens of “Bat printing” on the glaze, and of tinting.

[There are two distinct methods of printing in use for china and earthenware, one is transferred on the “bisque,” and is the method by which the ordinary printed ware is produced, and the other is transferred on the glaze. The first is called “press printing,” and the latter “bat printing.” The engraving is executed upon copperplates, and for “press” printing, is cut very deep, to enable it to hold a sufficiency of colour to give a firm and full transfer on the ware. The printer’s shop is furnished with a brisk stove, having an iron plate upon the top, immediately over the fire, for the convenience of warming the colour while being worked, also a roller, press, and tubs. The printer has two female assistants called “transferrers,” and also a girl, called a “cutter.” The copper plate is charged with colour, mixed with thick boiled oil, by means of a knife and “dabber,” while held on the hot stove plate, for the purpose of keeping the colour fluid; and the engraved portion being filled, the superfluous colour is scraped off the surface of the copper with the knife, which is further cleaned by being rubbed with a “boss,” made of leather. A thick firm oil is required to keep the different parts of the design from flowing into a mass, or becoming confused, while under the pressure of the rubber in the process of transferring. A sheet of paper, of the necessary size and of a peculiarly thin texture, called “pottery tissue,” after being saturated with a thin solution of soap and water, is placed upon the copper plate, and being put under the action of the press, the paper is carefully drawn off again (the engraving being

placed on the stove), bringing with it the colour by which the plate was charged, constituting the pattern. This impression is given to the "cutter," who cuts away the superfluous paper about it; and if the pattern consists of a border and centre, the border is separated from the centre as being more convenient to fit to the ware when divided. It is then laid by a transferrer upon the ware, and rubbed first with a small piece of soaped flannel to fix it, and afterwards with a rubber formed of rolled flannel. This rubber is applied to the impression very forcibly, the friction causing the colour to adhere firmly to the bisque surface, by which it is partially imbibed; it is then immersed in a tub of water, and the paper washed entirely away with a sponge; the colour, from its adhesion to the ware, and being mixed with oil, remaining unaffected. It is now necessary, prior to "glazing," to get rid of this oil, which is done by submitting the ware to heat in what are called "hardening" kilns, sufficient to destroy it and leave the colour pure. This is a necessary process, as the glaze being mixed with water, would be rejected by the print, while the oil remained in the colour.

The "bat printing" is done upon the glaze, and the engravings are for this style exceedingly fine, and no greater depth is required than for ordinary book engravings. The impression is not submitted to the heat necessary for that in the bisque, and the medium of conveying it to the ware is also much purer. The copper plate is first charged with linseed oil, and cleaned off by hand, so that the engraved portion alone retains it. A preparation of glue being run upon flat dishes, about a quarter of an inch thick, is cut to the size required for the subject, and then pressed upon it, and being immediately removed, draws on its surface the oil with which the engraving was filled. The glue is then pressed upon the ware, with the oiled part next the glaze, and being again removed, the design remains, though, being in a pure oil, scarcely perceptible. Colour finely ground is then dusted upon it with cotton wool, and a sufficiency adhering to the oil leaves the impression perfect, and ready to be fired in the enamel kilns.—T. B.]

Ornaments for the dessert table:—A group of Graces, in chased and burnished gold, supporting a basket. A group of Cupids. Four Cupids representing the Seasons: the ornaments in turquoise and gold. Pierced baskets, and dolphin stands, for holding fruit, bon-bons, &c.

Various specimens of enamelled and gilt porcelain trays for dessert and for decanter tables. Specimens of decanter-stands. Some varieties of decorated tazza.

Two wedding plateaux for supporting a bride cake: containing appropriate mottoes, and entwined wreaths of orange blossom and passiflora. Another plateau with an enamelled and gilt wreath of orange and passiflora of the natural size.

Specimens of earthenware:—Common printed ware for table and toilet services. Specimens of white earthenware. An enamelled bath, of Etruscan design.

Examples of the "Atmopyre," or gas stove, enamelled and in the Pompeian style.

Specimens of fine crystal glass, cut and engraved, intended for dessert-services, table-glass and lustres.

3 MASON, CHARLES, *Longton, Staffordshire*—Designer, Manufacturer, and Patentee.

Specimens of patent ironstone china.

Garden seats of a mixed Anglo-Indian and Japanese pattern, representing an old dragon, in raised enamel on a gold ground.

Garden seats of an Anglo-Chinese pattern, on a sea-green ground, with raised solid flowers, and gilt panels.

Fish-pond bowls, of Anglo-Chinese pattern; Gog and Magog, an Anglo-Indian pattern: the Water Lily, an Anglo-Japanese pattern.

Jars with raised enamel Mandarin figures, and sea-dragon handles. Large jars and covers of Anglo-Indian pattern. There are also some open jars. Jars covered; dragon handles of Anglo-Indian and Anglo-Japanese patterns, with raised solid flowers, &c.

Specimens of plates in the oriental style of pattern, on registered shapes, and Anglo-Japanese. Three jars and covers, with Anglo-Indian grounds. A plate, a dish, a tureen, a covered dish, a tall coffee-cup and saucer, and a sugar-basin, made of the white patent ironstone china, as used in the hotels of the United States of America.

Jugs of old Indian, Japanese, and gold patterns, of the original shape; also Anglo-Indian and melon pattern; with oriental figures and gold ornaments. Ewer and basin, and mouth ewer and basin, with oriental figures, and a rose border.

Jars:—the old India crackle, with India red grounds. A breakfast cup and saucer.

A monumental tablet, made of ironstone, and lettered under the glaze.

Jugs, showing various patterns in Bandanna ware. Toilet ewers and basins. Antique jugs of Japanese pattern, and gold ornaments. Red and gold paint jars. Zig-zag beakers, on bronze. Table-ware of a Japanese pattern in blue, red, and gold.

4 KENNEDY, WILLIAM SADLER, *Burslem, Staffordshire*—Manufacturer.

Articles in china and earthenware:—Mortice-lock furniture for doors of drawing-rooms, &c., with decoration, in burnished gold, flowers, &c.; finger-plates; bell furniture, shutter-knobs, &c., in same style; hall-door knobs; drawer-knobs, and knobs for all descriptions of cabinet-work; and figures for numbering houses.

5 RIDGWAY, JOHN, & Co., *Cuslodon Place, Staffordshire*—Potteries—Manufacturers.

English porcelain table service—border, coral and gold; centre, elaborate coat of arms of the united families of Ricardo and Duff; also, part without the arms.

Table-service, British wild flowers, Dresden style; border, embossed and gold. This table-service is represented in the cut on the opposite page.

Table service, same as last, with Grosvenor round covered pieces, marone and buff ground, gold, and star centre.

Table-plates of various patterns, gilt, chased, and ornamented.

Tea and coffee service, azure and gold, with gold star. This service is shown in the cut on the opposite page.

Tea and breakfast service, in various styles. A variety of fancy articles in porcelain.

Improved fine vitreous earthenware, consisting of specimens of the various articles in table and dessert suites; also, toilet and tea ware, coloured and printed.

A group of articles of dessert service is shown in the cut in the opposite page.

Specimens of earthenware for the United States' market.

Lawn fountain, white and gold, playing. Conservatory fountains, for playing. This fountain is represented in the cut on p. 717.

Specimens of staircase, with handrail, balustrade, and steps.

Sanitary vessels, &c., consisting of fountain basins, closets, &c. These vessels are represented in the cuts on p. 717.

The four preceding articles are an entirely new application of pottery.

Superior specimens of hollow bricks and quarries.



Ridgway & Co.'s Table Service.



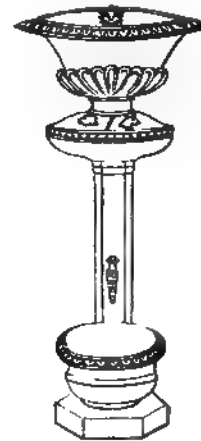
Ridgway & Co.'s Tea and Coffee Service.



Ridgway & Co.'s Dessert Service.



Ridgway & Co.'s Porcelain Fountain.



Ridgway & Co.'s Pottery Sanitary Vessels.

Mr. WILLIAM, Shelton—Manufacturer of vases, and jars, each ornamented with a different design, by means of mixed slips, or slip clays, the design being painted upon the clay previous to its being fired; the article required; by an entirely new

MR. JOSHUA, & SONS, 117, Strand, near the Custom House—Manufacturers of fine white and colored porcelain.—Figures from the antique: Cupid, 27 inches high; Cupid, 24 inches

high; infant Hercules, 20 inches by 17; Morpheus, 24 inches long, Venus, 19 inches high; Mercury, 17 inches high, Faun with flute, 17 inches high.

Figures: The Preacher on the Mount; crouching Venus; Nymph at the fountain; Cupid and Psyche, group, Cupid with bow.

Triton candlesticks, right and left (Flaxman).

Busts of Washington, Shakespeare on pedestal; and Venus. Sleeping Boys.

Spill cases, "Bonfire," and set of three "Muses."

Black vase, 8 inches (with the pedestal 9 inches)

"Apotheosis of a Poet." Two vases, 16 inches each. "Water and wine." Various other vases, plain, of different sizes. Lamp and candlestick.

Copy of Portland, or Barberini vase, 10 inches high, dark blue, as the original in the British Museum.

Another in black, with white jasper bas-reliefs. Blue jasper, with white bas-reliefs from the antique:—Vase, 25 inches high, with pedestal 10 inches high, "Sacrifice to Cupid."

Vase, 27½ inches high, "Apotheosis of a Poet."

Vase, with pedestal, 19½ inches, "Ulysses discovers Achilles." Another to match, "Infancy of Achilles."

Vases and pedestals, 21 inches, "Muses." Vases, 12 inches, "Hunting and Hawking," and "The Arts and Sciences."

Various other vases of different sizes, plain and ornamented, including "Hercules at the garden of the Hesperides." "Muses." Bacchanalian subjects, rivers, and arabesque designs.

Flower and incense vases and covers. Alumette club-shape pint jug; temple lucifer box; toy watering can; ring, cigar, and pen trays. Ornamented and Venetian lucifer boxes. Violet baskets; round covered, tooth powder, and lip-salve boxes.

Snuff-boxes. Shaving box, with zodiac ornaments.

Toy garden-pots and stands. Set of chess-men; thirty-four pieces, by Flaxman.

Jugs, various, Florence shape with bas-reliefs.

Octagon and oblong smelling bottles, silver mounted.

Howard and Clarendon tea-pots, pint.

Tea-pot, with aquatic plants, pint. Coffee-pot, Amoy shape, quart.

Pillar-shaped candlestick. Piano candlestick. Taper candlestick.

Jasper.—Cameos of various colours, with white bas-reliefs from the antique.

Black, with red Etruscan figures:—Vases, various, and with inscriptions.

Red terra-cotta, with black bas-reliefs, from the antique:—Choice vases, varied in style, size, and ornament. "Clarendon" toy tea set; comprising tea-pot, sugar, cream, slop bowl, and bread-and-butter plate. Tea-pot, pint, with Egyptian ornaments.

Red porous earthenware:—Wine and butter coolers, various designs. Water bottles and stands. Jug, with cover and stand, quart. Butter cooler, buff porous earthenware.

Chemical earthen and stone ware:—Mortar and pestle, 5 inches; mortar, 1 inch. Evaporating pan, acid proof. White pill tile, graduated. Funnel, fluted; coarse crucible and cover. Voltaic stone-ware trough, with red porous earthenware lining. Porous cylinder, and flat porous cell for voltaic apparatus. Mercury and water baths. Digester. Conical filterer; triangular filter holder.

Plumbers' earthenware:—Closet pans, cream-coloured, and flowing blue printed. Square wash-table, cream-coloured. Long square wash-table, with fittings complete, marbled. Wash-basin, with plug-hole and waste pipe, marbled.

Cream-coloured, or Queen's ware, with enamelled borders:—Etruscan-shaped soup-tureen and stand. Round covered vegetable dish. Dinner plates, in various designs.

Cream-coloured earthenware (Queen's ware):—Plates and dishes. High oval soup-tureen and stand, (by Flaxman). Round and oval soup-tureens. Round Etruscan soup-tureen and stand. Round covered vegetable dish. Herring dish, with embossed fishes. Oval twig pattern fruit basket and stand. Oval quatrefoil-pattern fruit basket and stand. Fruit dishes, various shapes. Quart jugs, Dutch and Roman shapes. Bowls, water-ewers, nursery-lamp. Coffee-beggin, with stove and lamp cup. Milk-boiler and cover. Wine-funnel, with strainer. Egg-beater; blanc-mange moulds; pudding-cups. Egg-shaped pudding-boiler. Round and oval milk pans. Pierced milk-skinners. White stone tea-pots, arabesque and wheatsheaf patterns.

Coloured earthenware:—Tea-pot, pint, Rockingham-

coloured, tall and low. Tea-cup and saucer, Bute shape, drab colour. Breakfast bowl and saucer, French shape, drab colour. Oval game pie, cane colour, ornamented. Cambridge ale jug, pint, red-coloured earthenware. Embossed leafage dessert plates and dishes, green glazed. Twig ornamented fruit basket and stand. Two-handled vase, red enamelled Chinese flowers. Jug, half-pint, club shape, black enamelled Chinese flowers. Small plain red garden pots and stands.

[We shall refer, in the first place, to the preparation of the two principal ingredients, flint and natural clay, for the use of the potter, and afterwards to the blending of them. The flint stones are first calcined, and this is effected in a kiln similar to that used for lime-burning. These stones are separated by alternate layers of coal, and the burning usually occupies about twenty-four hours. The flints are then very white and very brittle, and ready to be crushed by the "stamper," a machine composed of upright shafts of wood, six feet long, and about eight inches square, heavily loaded with iron at the lower end, which, by means of applied power, are made to rise and fall in succession on the flints, contained in a strong grated box. It is then removed to the grinding vats, which are from twelve to fourteen feet in diameter, and four feet deep, paved with chert stone, large blocks of which, being also worked round by arms connected with a central vertical shaft, propelled by an engine, become a powerful grinding medium. This peculiar stone is used because of its chemical affinity to the fluid, which, therefore, suffers no deterioration from the mixture of the abraded particles, which necessarily result from the friction, a matter of serious moment. In these vats the fluid is ground in water until it attains the consistency of thick cream, when it is drawn off and conveyed by troughs into the washing chamber. Here it undergoes a further purification; more water is added, and it is kept in a state of gentle agitation, by means of revolving arms of wood, thus keeping the finer particles in suspension while the liquid is again drawn away in pipes to a tank below. The sediment is afterwards re-ground. The cleansing process is not yet complete, for when the fluid has passed into these tanks, to about half their depth, they are filled up with water, which is repeatedly changed, until it is considered sufficiently fine, and free from all foreign matters: it is then fit for use. The clay requires no grinding. It is received from the merchants prepared, and has merely to be mixed with water till it attains the same degree of fluidity as the flints. The next stage is the "mixing," for which purpose the different "slips" (the technical term for the fluid clays, &c.) are successively run off into the blending reservoir, against the inner side of which are "gauging rods," by which the necessary proportion of each material is regulated. The mixture is now passed into other reservoirs, through fine sieves on "lawns," woven of silk, and containing 300 threads to the square inch. A pint of slip of Dorsetshire or Devonshire clay weighs 24 ounces, of proper consistence; of Cornish clay, 26 ounces; and of flint 32 ounces. Finally, the slip is conveyed to a series of large open kilns, heated underneath by means of flues, and about 9 inches deep. The excessive moisture is thus evaporated, and in about 24 hours the mixture becomes tolerably firm in substance. It is then cut into large blocks and conveyed to an adjoining building to undergo the process of "milling." The mill is in the form of a hollow cone, inverted, with a square aperture or tube at the lower part. In the centre is a vertical shaft, set with broad knives. When this shaft is in action (worked by steam power), the soft clay is thrown in, and forced downwards, being alternately cut

until it exudes from the aperture at the a perfectly plastic state, and ready for the potter.—T. B.]

SAMUEL, & Co., Burslem, Staffordshire—Manufacturers.

Designed by Alfred Crowquill:—

- | | |
|--------------------|---------------------------|
| lson cup. | 11. Dessert plate. |
| ice Congress. | 12. Snail ring-holder. |
| ip, Mischief. | 13. Butterfly pen-holder. |
| ip, Curiosity. | 14. Shell pen-holder. |
| s cup, male. | 15. Cod-fish ash-tray. |
| s cup, female. | 16. Lily cup and saucer. |
| te of all Nations. | 17. Spill-holder. |
| centre-piece. | 18. Spill-holder. |
| owl. | 19. Centre for flowers. |
| ottle. | |

Designed by S. W. Arnold:—

- | | |
|----------------|---------------------------|
| a jug. | 30. Bacchanalian vase. |
| a vase. | 31. Bacchanalian vase. |
| nd Psyche jug. | 32. Exeter vase. |
| ug. | 33. Apsley vase. |
| rn vase. | 34. Grenville vase. |
| Ellsler. | 35. Beneficence. |
| ewer. | 36. Blind beggar, male. |
| dy vase. | 37. Blind beggar, female. |
| cup. | 38. Greyhounds, chained. |
| ip. | |

Designed by San Giovanni:—

- | | |
|-------------------|---|
| s hunt. | 47. Series of porcelain tea ware. |
| on watch. | 48. Series of porcelain table ware. |
| chief. | 49. Series of white granite table ware. |
| with deer. | 50. Series of printed ware. |
| sket. | |
| isatori. | |
| f porcelain jugs. | |
| f porcelain des- | |

SON, JOSEPH, Shelton, Staffordshire Potteries—Manufacturer.

owered mulberry. Flowered damascene, of erna, black, brown, green, and blue. Flowered c and Chusan.

es, enamelled under glaze, Parisian flower-Japan beauty.

damascene, classical antiquities. Flowered orea. Flowered blue Leipsic. Flowered dailenberg. Blue, classical antiquities. Pink e Tessino. Black Siam.

sauce tureens complete, flowered damascene, iquities.

sugar-basins, and cream-pots, flowered blue amascene, Illenberg, brown, classical an-

andled tea-cups and saucers, blue and brown ious patterns.

saucers, handled and unhandled, blue Siam; al antiquities, enamelled under glaze, Parisian s; flowered mulberry, various patterns; pink iquities; flowered damascene, classical anti- en printed, various patterns. ls, flowered mulberry corea.

ishes, saucers, &c., termed "flat ware," are moulds which form the inside of the article, being given by "profiles" of the required le of fired clay, glazed. The clay is "batted" ecessary thickness and size, and laid upon the ch, is placed upon a plaster block, having an nd working on a pivot, the rotatory motion ffectured either by machinery or by the work-

The clay is pressed to the mould by the f wet sponges, and the "profile" being pressed eired contour. In this state the mould is

carried to a hot-air chamber, immediately behind the workman (of a very high temperature), fitted round with shelves, where it remains till tolerably dry, when the profile is again passed over it, and shrinking, consequent upon evaporation, having taken place, it is then easily removed.

Soup tureens, sauce tureens, jugs, teapots, &c., and termed "hollow ware," are made from *outside moulds*, formed in two or more parts, according to the facilities which the shape affords for "drawing." The clay is prepared and battled out as in the "flat pressing," and each part of the mould being separately lined with the clay, the whole are fitted together, and a strong strap passed round to secure them compactly in their places; the surface is then worked completely over from the inside (the mould giving the external surface), with a sponge, particular attention being paid to connect firmly that part of the article where the mould is divided. When sufficiently dry the mould is removed, and the "seams" well rubbed down, the surface also being smoothed with a sponge.—T. B.]

9 MAYER, THOMAS JOHN & JOSEPH, Dale Hall Pottery, Longport, Burslem, Staffordshire—Manufacturers.

Specimens of earthenware. Table ware in various patterns, and printed in a variety of colours. Various specimens of enamelled and gilt toilette and dessert ware. Various designs for meat pots, printed in colours, under the glaze.

Tall-candlesticks, bed, and piano-candlesticks, enamelled and gilt. Garden and rustic seats.

Various pans, enamelled, gilt, and marble printed. Enamelled and gilt plug basins. A marble painted butler's sink. Wash-tubs for public and private wash-houses, marble painted.

Enamelled and gilt finger plates and door furniture. Drawer or commode knobs, of various colours. A 3-bell lever, in jet and gold. Bell-pulls, enamelled and gilt.

Beer machine, and fire-iron handles, enamelled and gilt. Bell handles, in various colours. Enamelled and gilt cases for lamp pillars. German tactic, and solitaire boards, and lucifer match pots.

Advertising tiles, of various designs, printed in colours.

Oval and square paint palettes, made of white opaque porcelain. Indian ink slabs, of various shapes. Printed and enamelled scale plates, writing slates, and tobacco boxes.

White stone-ware punch bowls, enamelled and gilt; and jugs—with blue raised figures.

Enamelled and gilt tea urns, made of stone clay, capable of resisting the action of boiling water.

Stone appendages to offices, with perforated pipe round the top to supply a constant current of water for the purpose of washing the sides.

Artists' grinding stone, and a mortar and pestle, made of vitreous porcelain.

Funnels made of acid proof stone clay. Various articles used by the apothecary.

Vases and card baskets, in Parian ware, with a wreath of flowers. Brooches, pins, &c.

Bust of Wesley, from the original mould, belonging to the late Enoch Wood, Esq., the sculptor.

Birds' nest and bark shape jugs, in various colours; red, brown, and gold lustre porcelain, with silver wreath. An eau-de-Cologne bottle.

Dr. Arnott's ventilator.

[In enamelling, ground-laying is the first process in operating on all designs to which it is applied; it is extremely simple, requiring principally lightness and delicacy of hand. A coat of boiled oil adapted to the purpose being laid upon the ware with a pencil, and afterwards levelled, or as it is technically termed "bossed," until the surface is perfectly uniform; as the deposit of more oil in one part than another would cause a propor-

tionate increase of colour to adhere, and consequently produce a variation of tint. This being done, the colour, which is in a state of fine powder, is dusted on the oiled ground with cotton wool; a sufficient quantity readily attaches itself, and the superfluity is cleared off by the same medium. If it be requisite to preserve a panel ornament, or any object white upon the ground, an additional process is necessary, called "stencilling." The stencil (generally a mixture of rose-pink, sugar, and water) is laid on in the form desired with a pencil, so as entirely to protect the surface of the ware from the oil, and the process of "grounding," as previously described, ensues. It is then dried in an oven, to harden the oil and colour, and immersed in water, which penetrates to the stencil; and, softening the sugar is then easily washed off, carrying with it any portion of colour or oil that may be upon it, and leaving the ware perfectly clean. It is sometimes necessary, where great depth of colour is required, to repeat these colours several times. The "ground-layers" do generally, and should always, work with a bandage over the mouth, to avoid inhaling the colour-dust, much of which is highly deleterious. Basing is the term given to the process by which the level surfaces of various colours, so extensively introduced upon decorated porcelain, are effected. The "boos" is made of soft leather.

The process of gilding is as follows:—The gold (which is prepared with quicksilver and flux), when ready for use, appears a black dust; it is used with turpentine and oils similar to the enamel colours, and, like them, worked with the ordinary camels' hair pencil. It flows very freely, and is equally adapted for producing broad massive bands and grounds, or the finest details of the most elaborate design.

To obviate the difficulty and expense of drawing the pattern on every piece of a service, when it is at all intricate, a "pounce" is used, and the outline dusted through with charcoal—a method which also secures uniformity of size and shape. Women are precluded from working at this branch of the business, though, from its simplicity and lightness, it would appear so well adapted for them. Firing restores the gold to its proper tint, which first assumes the character of "dead gold," its after brilliancy being the result of another process termed "burnishing."—T. B.]

10 MEIGH, CHARLES, & SONS, *Hunley, Staffordshire*—
Manufacturers.

Soup and sauce tureens, vegetable dishes, dinner-plates. Centre pieces, compotiers, dessert plates, &c., chased, painted, and gilt, in a variety of colours and choice designs.

Ewers and basins, soap-boxes, and brush trays, in various colours and ornamental styles.

Lotus candlesticks and jugs, Albert shape, gilt and ornamented. A porcelain ornamented candlestick, represented in the cut.

Breakfast bowl and saucer, porcelain. Porter mug, porcelain. Slab, painted fruit.

Flower-pot and stand, Flora shape; acanthus flower-pots, coloured and gilt.

Vases—pink grounds, flowers and gold, chased; Celeste ground, chased gold—The Murder of the Innocents; pair, Cleopatra and Anne Boleyn, marone grounds, chased gold.

Large vases, with portraits of The Queen, and view of the Exhibition Building; and of Prince Albert, with interior view. Large stork vase, with water birds painted on each side.

These vases, &c., are represented in the accompanying illustrations.



Meigh & Sons' Ornamental Candlesticks.



Meigh & Sons' Portrait Vase.



Meigh & Sons' Bacchanalian Vase.



Meigh & Sons' Ornamental Vase.



Meigh & Sons' Portrait Vase.



Meigh & Sons' Illuminated Gothic Font.

Tea-cups and saucers, various patterns. Cake stands. Gothic font, illuminated and gilt. This font is represented in the cut in the next column.

Large vase—history of Bacchus (Parian). Vases Maltese (Parian).

Statuettes (Parian), of various kinds, Templar and Companion; Falconer and Companion; Bather and Companion; Cupid and Venus; Dancer and Companion; Flora; Prometheus.

Clock, subject, "Night and Morning," with a figure of Silence on the top. This clock is represented in the cut in next column; and another in chased gold (Parian).

Wine coolers, Bacchanalian (Parian and terra cotta)

Various figures, all Parian

Heads of Dr. Adam Clarke, Sir Robert Peel, Shakespeare, and Napoleon.

Cornucopias, Cellini candlesticks.

Butter-tub and stand, pink ground; jugs and miscellaneous articles; mug. Society of Arts medal. Cups and saucers.



Meigh and Sons' Ornamental Clock

11 BOOTE, T & R., Burslem, Staffordshire—Manufacturer.

Portland vase, fawn ground, white figures, about three feet high; ornamented by patent process.

Set of three Parian vases, ornamented with raised vine, drab ground, the largest three feet high. Another set, with groups of flowers, raised.

Parian allegorical group of figures. Rustic group.

Statuettes, in Parian, about 20 inches high, Shakespeare, Milton, Venus, &c. Parian vase, pierced.

Parian bust of Sir Robert Peel, taken from the picture by Sir Thomas Lawrence.

Sets of Portland and Ely jugs, drab ground, and white figures.

Pair of Doric mosaic vases, black ground, with fancy leaf, &c., in mazarine blue, traced in gold.

Set of mosaic jugs, black ground, with Grecian figures, mazarine blue, traced in gold.

Set of azure Grecian, and fawn jugs, &c., inlaid with white, traced in gold.

Sets of jugs:—Fawn ground, inlaid with white, fancy, &c., traced in gold; sage ground, Grecian figures, &c., traced in gold.

The six preceding articles ornamented by patent process.

Set of jugs, azure and sage grounds, border inlaid in white, traced in gold.

Ewers and basins—Fawn ground, inlaid with Grecian figures, &c., cut up; white ground, similarly ornamented; azure ground, inlaid with white, cut up; azure, inlaid with blue bell, &c., in white, cut up; fawn, similarly ornamented; white, inlaid with black, and blue bell traced (the four preceding articles ornamented with gold by patent process); white, with gold bands; ground laid with blue, finished with gold, also with pink, finished with gold.

Pair of Coptic vases, black ground, with fancy leaves, &c., mazarine blue, traced in gold by patent process.

Set of jugs, sage ground, inlaid with white. Dinner plates, ground laid, traced in gold. Dessert plates, ground laid, finished off in gold. Small Parian vase, flowered.

12 DIMMOCK, THOMAS, Shelton Potteries, Staffordshire—Manufacturer.

Table-plates, tureens, dishes and dish-covers, of various patterns and colours.

Garden-seats, japanned and gilt.

Wine cooler, of terra-cotta ware; in the form of a vase.

13 BOWERS, GEORGE FRED., Brownhills, Tunstall, Staffordshire—Manufacturer.

Specimens of ornamental earthenware cornices for rooms, and wash-board, representing carved oak and other woods. Centre-pieces for rooms in same style.

Ornamental bricks, to represent carving in wood or stone, and other decorative work.

These new articles are made under Beddeley's patent, the composition used being a peculiar description of earthenware, and the process of "pressing" the clay into the mould is effected by mechanical power.

Toy-ware; saucers, mazarine and gold; cans and saucers, and cups and saucers, green and gold; also in marone buff, green buff, fawn and fawn Greece, and gold; with saucers in mazarine red, mazarine, marone buff, and gold.

Paragon teapot, box, and cream, in white and gold.

Jenny Lind milk jug, teapot stand, slop bowl, sugar bowl, butter and stand, dishes, muffins, toast rack, bread and butter plate, bowl and saucer, and egg cup.

Card counter, pink and gold, black printed numbers.

Jugs utility edge-line and ornamented spouts; utility and Greek bouquet sprigs, plain; utility double stripes and wreath, and Greek, white and gold.

Mugs green and gold, with landscape, mazarine and gold, with landscape; roses and gold; double landscape, green ground, landscape and gold, and marone, gold, and flowers.

Paragon teapot, gold and flowers; bread and butter plate, drab flowers and gold, Jenny Lind; bowls and saucers, initial J L; French drab band and gold, French green, stripes gilt; and French marone, flowers and gold.

Teacups and saucers, Victoria embossed and Jenny Lind, white and gold. Punch bowl, gold band.

Candlesticks in pairs, gilt and flowers, marone and gold, and white and gold.

Flower bottle, flowers and gold. Set of spills, marone and celestial blue, flowers and gold.

Large double and caudled mug, gilt, lettered, and bowered.

Slabs painted landscape, gilt frames; painted flowers, gilt frames; and the "Cottage door."

Dessert plates, gold band and flowers; salmon and landscape; gilt and flowers, fawn and landscape; white and gold; bouquet, gilt; green and fawn, odd patterns, green leaves and flowers; marone and birds; drab and flowers; stone and gold; and marone and gold.

Exhibition bread and butter plate, muffin, and bowl and saucer, black; bowl and saucer, spills and mug, red; mugs, green, pink, black, "Present from London," and gilt marone. Teapot stand, "Scinde;" muffins and dish.

14 KEYS & MOUNTFORD, The Potteries, Newcastle-under-Lyme, Staffordshire—Designers, Inventors, and Manufacturers.

Specimens of porcelain statuary:—Statuettes of Flora; Prometheus tormented by the vulture; Venus unrobing at the bath; and two Circassian slaves.

Group of three boys, with perforated baskets for dessert, centre-piece.

Pair of figures, male and female, with glass linings to perforated vases.

Statuette of Venus extracting a thorn. Group of two dogs, setter and pointer, with game. Group of three greyhound dogs. Bacchanalian ewer from the antique. Claret vase ewer.

15 **PINDER, BOURNE, & HORN, Burslem, Staffordshire**
Potters—Manufacturers.

Mazarine blue ground and gilt soup tureen and stand. Cover-dish, maroon ground and gilt. Dish, 14-inch, maroon ground and gilt. Cover-dish, mulberry printed blue enamelled, and gilt.

Slop jar, ornamented and gilt. Slop jar, mazarine blue enamelled, and gilt.

Ewer and basin, maroon ground, and gilt. Ewer and basin, ornamented and gilt.

Dish, 14-inch, unique colour, printed, and gilt. Plates, mazarine blue and maroon, gilt; and various grounds, enamelled and gilt. Plates of various colours and patterns.

16 **ANDERSON & BETTANY, Longton, Staffordshire**
Potters—Manufacturers.

Series of china cups and saucers, and dessert plates.

17 **HILDITCH & HOPWOOD, Longton, Staffordshire**
Potters—Designers and Inventors.

Teapot, sugar-box, cream-jug, bread and butter plate, and cup and saucer; Portland shape, raised patterns, gilt and burnished.

Specimens of teacups and saucers, of various shapes and colours, with flower, scroll, landscape, and medallion patterns, in chased and burnished gold.

Centre-piece on pillar, with embossed vine border; grapes suspended from the handles. This centre-piece is represented in the following engraving.



Hilditch & Hopwood's China and Metal Centre-piece.

Mat blue ground and landscapes, raised and burnished gold ornaments; a shell, an oval, and a square compartment, in the same style as the centre-piece.

The operation of "burnishing" is done by females. The tools used for the purpose, called "burnishers," are blades of steel, firm hematite iron, and agates fitted into handles. The gold is first scoured with fine wetted sand, which tests the extent of the firing: if not sufficient, the gold will not adhere, and if in excess, the brilliancy will have been destroyed. In the first case, the ware has to be passed through the kiln again without further labour, but, in the latter, it has to be thoroughly re-gilt. After "sanding," the burnishers are applied very briskly, and immediately produce a polish, which is increased in brilliancy by repeated action. A cloth dipped in the solution of whiting is occasionally used to clear the surface.—T. H.

18 **DEAKIN, EDWIN, Lich, Staffordshire**
Manufacturer.

Silver lustre articles.—Mouth ewer and basin; coffee and teapots, sugar-box and cream-jugs; tea and breakfast

cups and saucers; toilet rack and egg frame with cups; communion cup with handles, plate, jug and cover; sugar tureen, with cover, stand and ladle complete; vegetable dish and cover; candlestick and extinguisher; broth bowl with stand and cover, mugs, jugs, mustard pots, peppers; salts, &c.

19 **SERGEANT & PIPPER, Hanley, Staffordshire**
Producers.

Specimens of engraved patterns for printing on earthenware.

20 **TILL, THOMAS & SON, Lich, Staffordshire**
Manufacturers.

Pekin shape articles, ewer and basin, soup-box, brush-tray, &c.

Virginia shape jug, unique, gilt, and green pebble.

Berlin shape, breakfast cup and saucer set and bowl.

Albany shape dishes, baker and plates, pearl white granite.

Virginia shape set, teapot, sugar, cream, cup and saucer; in pearl white granite.

Dessert plate, gilt. Set of jugs, Catania shape, turquoise gilt tracings, another set, Franklin shape, gilt lines.

Virginia set, cup and saucer; Celeste, Lahore.
Set of jugs, pearl white granite, Virginia shape; bowls of the same. Coffee-pot of the same; Boston shape.
Sets, Berlin shape, cup and saucer, green, and gilt blue.
Albany shape soup tureen, complete, and sauce tureen, complete, white granite, gold bands; also, covered dish, &c., of the same.
Virginia shape, set tea-cup and saucer and tea-pot, white granite, gold bands.

21 CORK & EDGE, *Queen Street, Burslem, Staffordshire*—Manufacturers.

Tea services in black, lustre, drab, and lilac earthenware.

22 PRATT, F. & R., & Co., *Fenton Potteries, Staffordshire*—Manufacturers.

Terra-cotta model for a timepiece, "Paris and Helen."
Two Etruscan vases, with figures from "Flaxman's Iliad."

Porous water-coolers, plain and in enamelled colours.
Earthenware, printed in various colours, under glaze, after pictures in the Vernon Gallery, &c.

Dessert ware, with the following subjects:—

- "The Last In," W. Mulready, R.A.
- "Highland Music," Sir E. Landseer, R. A.
- "The Blind Fiddler," Sir D. Wilkie, R.A.
- "The Truant," T. Webster, R.A.
- "The Hop Queen," W. T. Witherington, R.A.
- "Cottage Children," T. Gainsborough, R.A.

Bread platter, and cheese dish, picture and frame, with Scripture subject, by H. Warren.

Two pictures printed in colours, under glaze, in earthenware frames. A variety of box covers, and pair of ornamental vases, in the same style.

These subjects are executed under the glaze by the ordinary process of "biscue" printing, each colour is produced from a separate engraving, and the "transfer" requires to be carefully registered.

[The process of biscue firing is as follows:—The ware being finished from the hand of the potter, is brought by him upon boards to the "green-house," so called from its being the receptacle for ware in the "green" or unfired state. It is here gradually dried for the ovens: when ready, it is carried to the "sagger-house," in immediate connexion with the oven in which it is to be fired, and here it is placed in the "saggers:" these are boxes made of a peculiar kind of clay (a native marl), previously fired, and fusible at the heat required for the ware, and of form suited to the articles they are to contain. A little dry pounded flint is scattered between them, of china and sand of earthenware, to prevent adhesion. The purpose of the sagger is to protect the ware from the flames and smoke, and also for its security from breakage, as in the clay state it is exceedingly brittle, and when dry, or what is called "white," requires great care in the handling. A plate sagger will hold twenty plates, placed one on the other, of earthenware; but china plates are fired separately in "setters" made of their respective forms. The "setters" for china plates and dishes answer the same purpose as the "saggers," and are made of the same clay. They take in one dish or plate each, and are "reared" in the oven in "bungs" one on the other.

The hovels in which the ovens are built form a very peculiar and striking feature of the pottery towns, and forcibly arrest the attention and excite the surprise of the stranger, resembling as they closely do a succession of gigantic bee-hives. They are constructed of bricks, about 40 feet diameter, and 35 feet high, with an aperture at the top for the escape of the smoke. The "ovens" are of a similar form, about 22 feet diameter, and from 18 to 21 feet high, heated by fire-places, or "mouths," about nine in number, built externally

around them. Flues in connexion with these converge under the bottom of the oven to a central opening, drawing the flames to this point, where they enter the oven: other flues, termed "bags," pass up the internal sides to the height of about four feet, thus conveying the flames to the upper part.

When "setting in" the oven, the firemen enter by an opening in the side, carrying the saggers with the ware placed as described: these are piled one upon another from bottom to top of the oven, care being taken to arrange them so that they may receive the heat (which varies in different parts) most suited to the articles they contain. This being continued till the oven is filled, the aperture is then bricked up: the firing of earthenware biscue continues sixty hours, and of china forty-eight.

The quantity of coals necessary for a "biscue" oven is from 16 to 20 tons; for a "glost" oven from $4\frac{1}{2}$ to 6 tons.

The ware is allowed to cool for two days, when it is drawn in the state technically termed "biscuit," or biscue, and is then ready for "glazing," except when required for printing, or a common style of painting, both of which processes are done on the "biscue" prior to being "glazed."—T. B.]

Dessert ware, Etruscan shapes, in white and gold.

A variety of printed and enamelled dinner ware.

A mazarine blue jar, ornamented in gold.

23 DANIEL, A. B. & R. P., 18 Wymore Street, and 129 New Bond Street—Designers.

Dessert services, executed at the Coalbrook Dale china manufactory.

[In these services is shown an attempt at the revival of the beautiful pink or rose colour found on the old *pié tendre* of Sèvres, known as the Rose Dubarry. Madame Dubarry having some vases executed at the Sèvres works, the rose colour was adopted, as being the lady's favourite, in compliment to her. Colours of this character are usually produced by combinations of gold with salts of ammonia, to which sometimes tin and the oxide of manganese are added.—R. H.]

24 EARNSHAW & GRAVES, *Marborough Pottery, Rothham, Yorkshire*—Manufacturers.

Printed *biura*, exhibiting specimens of Yates' patent porcelain letters.

25 GLOVER & COLCLOUGH, *Longton, Staffordshire*—Manufacturers.

Gold and silver lustre earthenware, useful jugs, &c.

26 BELL & Co., *Glasgow*—Manufacturers.

Dinner services in stoneware:—Blue printed, landscape pattern, "Italian lakes." Flowered ware, mulberry centre with azure border, "Warwick vase," registered pattern. Pure white, gilt.

Toilet services in stoneware:—White basin and ewer, gilt, antique shape; "Diana," with registered ewer. Basin and ewer, printed and coloured. Large basin, marble pattern. Foot-bath and jug, marble pattern. Large basin, flowered mulberry, "convolvulus" pattern.

Tea services and jugs in stoneware and porcelain. Common stoneware, in dipt, sponged, and painted. Fancy articles in stoneware, porcelain, and Parian. Scent jar in stoneware, antique shape, with Turkish centre, printed in five colours. Wine-coolers, antique shape, with stands.

Articles in Parian:—Small vases, with figures in bas-relief, the body and handles modelled after a vase found in Pompeii. Antique vase with upright handles. Jugs modelled after the antique, with bas-reliefs from the Elgin marbles, representing the Battle of the Amazons. (Registered shape.) Jugs, same shape but plain, with

subject enamelled. Bas-reliefs from the Elgin vase, &c.
cimens in terra cotta:—Large vase (Piranesi) with scrolls in bas-relief. Large vase, similar, lain. Large fluted columns, serving as pedestals, with capitals and bases complete. Shorter ones without capitals.

large proportion of circular articles, not requiring ornament or relief beyond plain curved surfaces, are thrown and turned." Few are unacquainted with the working powers of the potter's wheel. A ball of clay is placed on the centre of the revolving block, and the simplest manipulation is made to spring at once into form and character, assuming at the operator's will the outline of which a circular vessel is capable, the clay being formed or transformed with an ease and facility almost incredible. Every piece, when made, is fitted to the block by a wire being passed under it.

When the "thrown ware" is sufficiently dry, it is transferred to the hands of the "turner," whose province it is to trim the curves more truly and sharply, and to give it a uniform smoothness and polish to the surface. The process resembles that of ordinary wood turning, from the nature of the material is executed with greater facility. The vessel is fitted upon a block, called a "hum," attached to the lathe, and the turning is made by thin iron tools, few in number, and simple in construction.

Articles of this class which require "handles" are fitted from the lathe to the "handler." These useful articles are made by pressure in moulds of plaster of Paris, and after being sufficiently dried are fixed on the vessel with "slip." The adhesion is so immediate that, in most cases, the article may be lifted by the handle; and it has left the hands of the operator. When the piece is fitted, the superfluous slip which exudes from the junction after the parts have been pressed together, is removed with a sponge, and the surfaces worked over, and smoothed round with a small tool, the piece is then finished, unless a "spout" or "lip" is required, as in the case of teapots, jugs, &c. These are fitted and attached in the same manner as "handles."—

WHALLEY, T., *Stockton-on-Tees*—Manufacturer.
Various compositions for glazing earthenware.

The materials comprised in the various glazes commonly used for china and earthenware are—Cornish stone, white lead, glass, whiting, &c. These, having been mixed together in proper proportions to the consistence of a thick cream, form the glaze. The process is effected in large kilns termed "dipping-houses" (china and earthenware being kept separate), fitted up with tubs for the ware and stages for the reception of the ware when dipped, upon which it is dried and heated generally by the use of a large iron stove or "cockle," from which pipes, extending in various directions, convey the heat throughout the whole extent of the "houses." The dipper is provided with a tub of glaze, in which he immerses the bique ware. We may note the results of long experience in imparting a facility and dexterity of handling, so necessary to perfection in this process.

The ware is held so that as small a portion as possible shall be covered by the fingers; it is then dipped in the glaze, which, by a dexterous jerk, is not only to cover the entire piece, but, at the same time, so disperses it, that an equal and level portion is spread over the whole surface which, being porous,

imbibes and retains it. The ware is handed to the dipper by a boy, and another removes it when dipped to the drying or "hot-house." The glaze is opaque till fired, so that the design of pattern executed on the bique is completely hid, after dipping, till they have been submitted to the glost fire. An able workman will dip about 700 dozen plates in a day.—T. B.]

28 FELL, T., & Co., *St. Peter's Pottery, Newcastle-upon-Tyne*—Manufacturers.
Specimens of common earthenware.

29 SOUTHOORN, WILLIAM, & Co., *Brosley, near Iron Bridge, Shropshire*—Manufacturer.
Tobacco-pipes, of prepared clay, which gives them a more porous quality; with improved glaze, and green lip.

29A MICHELL, J., *Calenich, Truro*—Manufacturer.
Cornish crucibles.

30 JULEFF, J. & J., *Redruth, Cornwall*—Manufacturers.
Specimens of Cornish crucibles. Copper, lead, and silver assaying crucibles. Tin assaying crucible (black lead). Jewellers' crucibles, three-cornered and round, and black-lead crucibles.
Refiners' pots of different sizes. Skittle pots.
Muffles of different sizes and shapes.

31 KAY, THOMAS, *Holbeck, near Leeds*—Inventor and Manufacturer.
Pots for horticultural purposes, with feeders.
Self-feeding pots. Suspending pots for orchids.
Bordering for garden walks.

32 MILLS, JOHN, *Leeds*—Manufacturer.
Specimens of Rockingham coffee-pots and tea-pots. Shell and blue shell tea-pots. Shell jugs, and smeared-black tea-pots.

33 SIMPSON, J., *28 Theobald's Road*—Manufacturer.
Table, tea, and dessert services in earthenware. Plug basins and toilet ware. Parian statuettes.

34 WOOD, GEORGE, *Brentford*—Designer, Inventor, and Manufacturer.
Very large orange-tree garden-pots, ornamented.

35 BOURNE, JOSEPH, *Derby Pottery, near Derby*—Patentee and Manufacturer.
Specimens of articles manufactured from fine stoneware clay, so vitrified as to be equal to glass for purposes in which the latter is employed.
Garden-labels, faced with white enamel, and lettered in black, which, from their impervious nature, are well adapted for arboretums, pleasure-grounds, &c.
Specimens of articles made from the same stoneware clay, in the "biscuit," or unglazed state, as garden-vases, flower-pots, scent-jars, &c.

36 SHARPE, BROTHERS, & Co., *Stradlincoate, near Burton-on-Trent*—Manufacturers.
Specimens of fire-proof baking-dishes, and other articles of Derbyshire ironstone caneware, of Rockingham ware, both of native clay; and of printed earthenware, of the clay in a refined state.
The characteristics of ironstone caneware are, its capability of enduring the action of fire, its strength, and its general usefulness.

37 EDWARDS, J., & Sons, *Dale Hall, Staffordshire*—Manufacturers.
Large Parian vase, and large earthenware tray.

38 FINCH, JOHN, *6 Pickard Street, City Road*—Patentee with F. T. Rufford of Stourbridge.
Models and sections of full-sized baths and wash-tubs. Manufactured from the designs of P. P. Baly, Esq.

Porcelain wash and steam tubs, full-sized. Glazed bricks and slabs.

Porcelain tile bath and appendages, with bath-room fitted up complete, including Busby's registered valve, showing the bath in operation.

Bath-room furniture, including porcelain angular shelves, bat rails and pegs, looking-glass frame, soap-dish, plugs for bath, labels numbered, and door handles.

Wash-room furniture—porcelain soap shelves, perforated shelves and tiles, closet pans, and glazed pipes.

39 **LOWE, THOMAS, 40 Ely Place, Holborn.**
Painter and Producer.

Table plates, painted with subjects in the centre of each. Miniature portrait of Her Majesty, after Ross. Infant John, after Correggio. Jew's harp, after Wilkie. English rustic, after Howard.

40 **ALLEN, JOHN MILNER, 14 Catherine Street, Strand.**
—Producer.
Painted and gilt China dessert plates.

41 **SHARP'S & CULLUM, 13 Cockspur Street, Charing Cross.**
Designers and Proprietors.

British china and British earthenware, of new forms and original designs. Dessert services.

British glass, showing the improvement made in British crystal. Decanters, wine-glasses, &c.

43 **BRAMELD, JOHN WAGER, 7 Colney Place, Regent-street.**
—Manufacturer.

Ice pail of Rockingham china, gilt, with enamel painting of "Bird-trap," and "Charity," with snow scenes, on the foot, and stem of green holly and berries.

Vase, with painting of "Champion," after Webster.

Grape basket, with Guava cup for pine apple, and wreath of gilded union flowers in china.

Pattern cabinet cups and saucers.

Breakfast cup and saucer, of the original Rockingham glaze, painted with flowers, and the rose, shamrock, and thistle, gilt.

[The Rockingham china was so named in compliment to the celebrated Marquis of Rockingham, to whose patronage was due the introduction of the very fine porcelain known by this name. This, like most of the English porcelains, consists of a clay body, through and over which the glaze is diffused. The glazes vary very much in character, but they are usually composed of silica, potash, and lead, a mixture which, being fused, produces a very transparent glass.—R. H.]

44 **CHAMBERLAIN & Co., Worcester.**
Designers and Manufacturers.

Tea service of egg-shell china, with a medallion of Shakspeare on each cup.

Communion and déjeuner services, of pierced or honey-comb china.

Pierced jugs, bottles, chalice, cups, and stands.

Portfolio china slabs, with view of Malvern, and scene from "Twelfth Night." Slabs and frames with paintings.

Adelaide vases, gilt, &c., with views of Constantinople and Smyrna, and painting of various kinds.

Snake-handle vases, with views of Worcester and Malvern. Coventry vases with medallions of Shakspeare and Milton.

Large inkstand; Dresden basket; China bracelets and brooches; China mortice door-furniture.

Vegetable dishes and covers. Sauce tureens and stands. Breakfast cups and saucers. Tea-cups. Dessert and table plates. Portion of dessert service—biscuit, blue band, with views, crests, and coats-of-arms.

Gold and white Dresden baskets, with paintings.

[In 1751, Dr. Wale established a manufactory in Worcester, under the name of the "Worcester Porcelain Company," and to him appears to be due the idea of printing upon porcelain—the transferring of printed patterns to

biscuit ware, as now usually adopted. From a magazine in the Museum of Practical Geology, decorated with a portrait of Frederick the Great, the date of this process appears to be 1757.

The original Worcester Company principally confined themselves to making blue and white ware, in imitation of that of Nankin, and in producing copies of the Japanese pottery.

Cookworthy, of Plymouth, appears to have carried on the business of a potter, in Worcester, until 1783, when this manufactory passed into the possession of Mr. Thomas Flight.—R. H.]

45 **BROWN, T. & M. L., 47 St. Martin's Lane.**
Manufacturers.

Dinner and dessert plates, specimens of enamelling and gilding on stone china.

[Stone china differs from the "tender porcelain," as the English ware is termed, in being a fused body; the alkali of the clays employed being, by the heat of the furnace, made to combine with the silica and alumina. Enamel colours are such as consist of metallic oxides combined with an alkaline flux, which, when exposed to a high temperature, forms a perfect glass.

When the ware leaves the hands of the painters, gliders, &c., it is carried to a receiving-room in connexion with the "enamel-kilns." The firemen select the ware from this room, according to the degree of heat they may require, and place it in that part of the kiln most likely to secure it. The different articles are ranged upon stages constructed of "slabs" or "bats," supported on "props," all made of fired clay. The time of firing is from six to seven hours, according to the size of the kiln, and whether it contains any articles of unusual size and hazard; in which case the heat is brought forward very gradually. The "ground-laying" being executed with colours less fusible than those employed by the painters, the ware so decorated is fired in separate kilns at a higher temperature, a level glossy surface being a great desideratum; and as gold is often used in relief upon the "grounds," it would be liable to sink and lose its lustre, unless the under-colour had received a greater degree of heat than is required by the gilding. The kilns are built of large fired clay slabs, made expressly for the purpose. They are about 3 feet 6 inches wide, 4 feet 6 inches high, and 6 feet 6 inches long, with circular tops, having flues beneath and around them. The fire-places, or "mouths," are at the sides, and the flames passing through the flues encircle the kiln externally. Great care is taken to prevent the admission of smoke or flame into the body of the kilns, the fronts of which are closed with iron doors, having in them small apertures, through which the firemen occasionally draw "trials" of colour made upon small pieces of ware, and thus ascertain, to a certain extent, the progress of the heat. This is a material assistance, but being drawn from one part only, still leaves a task requiring great care and nicety of judgment to manage successfully. Gold, if not sufficiently fired, will wipe off, and if over-fired will not "burnish," and the gilding has to be repeated.—T. B.]

Plates, entrée dishes, and soup tureens, *en suite*.

Tea-cups and saucers; specimens of painting and gilding on porcelain. Various articles in glass.

46 **GRAINGER, G., & Co., Worcester.**
Inventors, Designers, and Manufacturers.

Dinner and dessert plates. Soup tureens. Vegetable dishes and covers. Ewers and basins.

merous a series of these valuable mementos of archaic taste and skill. They are composed of red clay, the figure and ornamental composition being executed on a dark liquid pigment, worked in quick-drying oils, and submitted to a considerable degree of heat, to secure effectual adhesion. Amongst the earliest designs are placed those in which the black silhouette-like figures are painted upon the red or buff ground. These vases, with the figures and ornaments in red on a black ground, mark the period when Greek art was at its zenith.

In reference to the forms of these vases, it may be instructive to remark, that a careful analysis of the best examples in the British Museum proves that every curve is the segment of a circle; and it has been mathematically demonstrated, that even in instances where the most irregular diversity of outline has been presented, that every curve has been circular and none elliptical.]

54 LIPSCOMB, JAMES, & Co., 93 Regent Street—
Designers.

Fountain; the basin formed of cut glass; the pedestal of Carrara marble; inside of the basin, on marble rock-work, is a Cupid, made of biscuit china, supporting a marble cup.

Filtering machine (arabesque pattern).

55 LOCKETT, G., *Bleak Hill, Colbridge, Staffordshire*—
Manufacturer.

Various specimens of ware exhibiting samples of hand kiln, and enamel colours.

56 DUDSON, J., *Hope Street, Shelton, Staffordshire*—
Manufacturer.

Ornamental china figures.

57 EMERY, F., *Colbridge, Staffordshire*—Manufacturer.

Colours for painting on glass and china.

58 MARSH, J., *Longport, Staffordshire*—Modeller
and Designer.

Wine-cooler and bust in terra-cotta.

59 LETCH & HAMMOND, 11 Mortimer Terrace,
Kentish Town—Manufacturers.

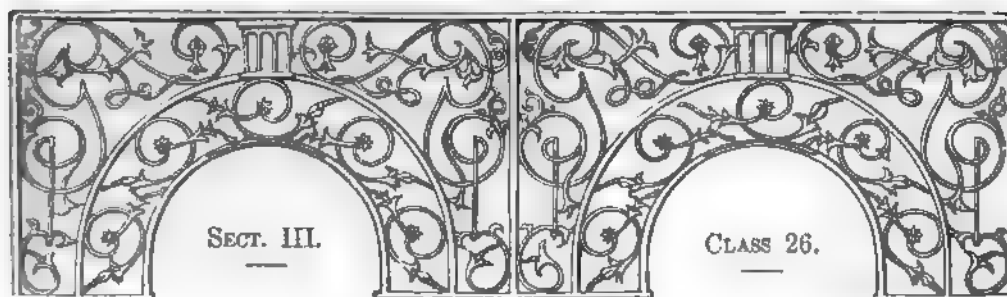
Registered respirator smoking-pipe.

60 HUGHES, T., jun., *Colbridge, Staffordshire*—
Modeller and Designer.

Bust of Rev. John Wesley, in Parian.

61 LIPSCOMB, F., 233 Strand.

Two portable fountains and two scent jars.



FURNITURE, UPHOLSTERY, PAPER HANGINGS, PAPIER MACHÉ AND JAPANNED GOODS.

INTRODUCTION.

The objects contemplated by the present Class are such as pertain to decorative and domestic uses in the form of furniture exclusively of this description. All those articles for which the wants or luxuries of mankind have created a demand are represented in this Class, and a lively picture of the degree of social and domestic refinement attained in our age, and also, in fact, of the application of art to ordinary objects, is thus presented to view. The Class is a large one in regard to the number of its Exhibitors, and also to the space occupied in the Exhibition Building. The articles exhibited present evidences of a large expenditure of time and money, and many of the decorative objects appear better to become the apartments of a palace than those of persons in the ordinary walks of life.

The Class is thus subdivided:—A. Decoration generally, including Ecclesiastical Decoration; B. Furniture and Upholstery; C. Paper-hangings; D. Papier maché, Japanned Goods, Pearl, and Tortoiseshell work.

In the Building, articles belonging to this Class will be found arranged in Areas I. J. 19 to 25, and L. to 21 to 24. These Areas will be readily found on the South side of the Eastern Nave, midway between the Western and the Eastern Entrance. Several specimens of furniture are exhibited among the objects in the Western Art Court. The immense mirrors in the Avenue, which may be considered, when mounted in decorated frames, as belonging to this Class, occupy a prominent position, which must render them appreciable to every visitor. Other articles, such as a Corinthian capital in papier maché, a pianoforte, and a table in the same material, are likewise placed in the Western Main Avenue. The paper-hangings are placed on the wall at the North-east corner of the Building, on the Ground Floor, and in the Gallery above. The wall decorations, in imitation of marbles and woods, blinds, &c., are placed against the principal walls and partitions of the Building on the South side, East and West ends, North-east corner, and in the Locomotive Avenue. In the Court, and the Medieval Court, are also a collection of articles included in this Class.

The number of different localities producing such articles as are comprised within this Class is, as might be expected, very considerable, although a large proportion, from causes readily intelligible, is derived from the West of England. The production of most of the objects of furniture, presenting few mechanical difficulties, and requiring no universal skill, is carried on in almost every locality in this kingdom. But some of the articles which relate to decoration, as paper-hangings, are generally made in the larger manufacturing towns only. Of late, Manchester has produced a large number of paper-hangings, printed by machinery; in London, a higher but more expensive class of paper-hanging is made principally by hand, or, in other words, by block-printing. The manufacture of papier maché is carried on to a very large extent at Birmingham, where extensive factories have been erected, which are devoted solely to the production of a variety of objects in this useful material. The manufacture is also carried on at Wolverhampton and in the West of England.

The amount of ingenuity, of contrivance, and arrangement, which has been expended upon furniture, is scarcely conceivable, and it has been applied to the most common objects of domestic utility. Tables, couches, chairs, &c., have all received a share of this kind of attention; and those improvements in their adaptation to use, which have been considered worthy of more extensive introduction, are illustrated in different directions. Many specimens of furniture, formed out of timber of extreme antiquity, are exhibited. Furniture is, also, now, the material of which is new in its application to such purposes—as timber from New Zealand, &c. The beautiful varieties of veining in mahogany, walnut, oak, and other woods, are admirably illustrated in the different pieces of furniture exhibited.

Glass has lately been applied with some success in imitation of marble for the purposes of decoration. The lower surface is painted with the colours and veins of marble, and the effect seen from above is not dissimilar. A variety of paper-hangings of different designs, and of decorations applied to apartments, are also exhibited. The papier maché articles are extremely beautiful, and the manner in which they are inlaid with pearl is interesting.

The appearance of the entire Class bespeaks a high degree of national prosperity; and, while displaying the skill and taste of the manufacturers, indicates not less distinctly the wealth and domestic refinement of those whose use the greater majority of the articles exhibited are unquestionably intended.—R. E.

1 THORN & Co., 98 New Bond Street—Designers and Manufacturers.

Gutta serena manufactures:—Decorations; girandole; various specimens and patterns of frames, brackets, mouldings, &c., gilt.

2 WALLACE, ELIZABETH, 4 Russell Place, Fitzroy Square—Inventor.

Slabs of glass, to imitate various kinds of marble, as Sienna, Egyptian green, red mona, Bardilla, verde antique, jaspers, porphyries, serpentine, &c., applicable to walls of dining-rooms, drawing-rooms, &c., plain and panelled on ceilings, &c., as pilasters, and columns, and inlay. Column of glass, representing malachite, surrounded by wreaths of roses, showing the application of this material to the formation of pillars, &c. Tomb of glass, representing marble, showing its durability and permanent beauty in exposed situations, such as cemeteries, &c. Picture frames and looking-glass frames, composed of a surface of glass, by which the metal, or other material beneath the glass, is protected from the action of the atmosphere. Articles of furniture, in which glass subjected to this process is the principal feature.

When properly backed up, glass obtains all the solidity of stone, and in case of accident is more readily restored by the patent process.

2A TOWNSEND, J. E., High Street, Camberwell—Inventor and Manufacturer.

Bedsteads for invalids, capable of being converted into an arm-chair, with wash-stand, table, and reading-desk.

3 MELVILLE, JOHN, 64 John Street, Fitzroy Square—Inventor.

A portable self-supporting pulpit, with handrails for stair, platform, &c.

4 BURROUGHS, W., & WATTS, F., 19 Soho Square—Designers, Manufacturers, and Proprietors.

Full-sized billiard table and marking board, of brown English oak, in the Elizabethan style.

5 JACKSON & SONS, 49 and 50 Rathbone Place—Designers and Manufacturers.

Works in carton-pierre, papier maché, and composition, for decoration and furniture. Compartment of decoration, in carton-pierre, in high relief, for a large saloon. Caryatide figure, with entablature over. String course of dolphins, bulrush, &c. Large entablature, pilaster, and console. Large ceiling flowers, of varied designs. Chandelier, adapted to gas or candles. Bracket, with group of

lights, to attach to walls. French door ornaments, in composition, in style of Louis XIV.

Console table, with boy, &c., in carton-pierre. Two groups of birds. Alto-relievo groups, wild ducks and other hunt in the same. Writing case, papier maché covers. Book covers in papier maché. Pilaster enrichment and other specimens. Thermometer case, executed in composition. Group of boys carrying lights. Elizabethan pendentive ceiling, executed in carton-pierre. Papier maché enrichments. Centre table, dolphins, &c. Boy with lily lights, in carton-pierre and papier maché.

6 WHITE & PARLEY, 4 Rathbone Place—Designers and Manufacturers.

Model of a room, in composition ornament, as prepared for the gilder, painter, and upholsterer; including outline of design for carpet.

Ladies' work-table, in composition ornament, with slide and folding front, as prepared for the gilder and upholsterer. The same design as applicable to a writing-table, using the angle boxes for inkstands, washers, &c., or, if required, as a work-table.

7 BERSILL, G. H., 9 York Terrace, Queen's Road, Hornsey Road, Holloway—Inventor.

Telescopic lounge, forming a substitute for the sofa bedstead; made by J. Rubery, 1 Goldsmith's Place, Hackney Road.

8 RIDGE, BENJAMIN, M.D., Putney—Inventor.

Invalid bed-carriage, for spinal and other complaints.

9 TAYLOR & SONS, 167 Great Dover Street, Southwark—Designers and Manufacturers.

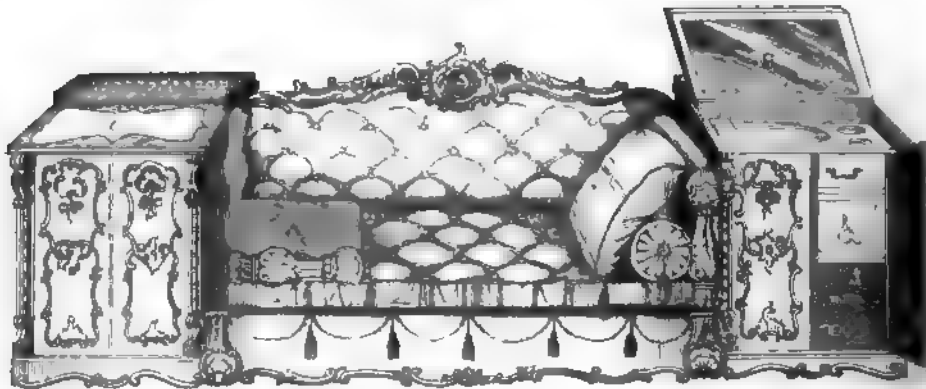
Furniture for a steam-ship or yacht's cabin, on a new and condensed form (see the annexed engraving).

A, walnut-wood couch, forming a bed when required, stuffed with the exhibitors' patent cork fibre, to make it buoyant when placed in the water. Each part being made portable, is immediately convertible into a floating life-preserver; and the whole forms a floating surface of 50 feet, or life-raft, in the case of danger at sea.

B, walnut-wood cabinet, forming a self-acting wash-stand, and containing requisites for the dressing-room and toilette.

C, walnut-wood cabinet, as a Davenport, forming a patent portable water-closet.

Model of a balancing table, for wine, tea, soup, or any fluid requiring to be kept horizontally on board ship.



Taylor & Son's Improved Ship's Furniture.

A volva folding chair, and revolving back American seat. A cork mattress, bolster, pillow, and cushion, each of which is a life-buoy.

Slab of artificial marble of baked and polished clay; can be adapted for pavements, walls of halls, linings of baths, table-tops, trusses, capitals, or cornices, &c.

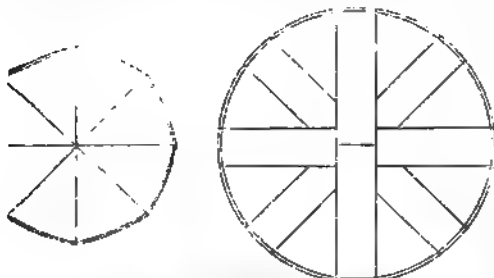
10 JOHNSTONE & JEANER, 67 New Bond Street—Manufacturers.

1 A sideboard of mahogany, in the Italian style; each pedestal consists of an infant Bacchus, with accompanying attributes, carved with foliage, grapes, hops, &c.; having a bacchante and bacchanals as medallions in the

AREAS I. J. 19 TO 25; L. TO O. 21 TO 24.

tree, and enriched with appropriate foliage. The No 16 represents this sideboard.

1. A patent circular dining-table, made on a simple principle, to expand from a small to a large size, without aid of spring or fastening, in mahogany; the stand fixed in the Italian style, with grotesque masques, &c. A diagram shows the table in its closed and in its expanded state, with the form of the pieces of which it is composed.



Johnstone & Jeanes' Expanding Circular Dining Table.

1. A patent expanding plateau for the dining-table, in ver plate, made with revolving arms to carry round the



Thurston & Co.'s Slate top Billiard Table.

BLOTT, ESTHER, Wellesbourne, near Stratford-on-Avon—Designer.

Harlequin chintz cushions stuffed with hair: design, England's choicest flowers." saucers of various kinds, for game, meat, and made tea.

WYNNE & LUNSDEN, 30 First Street, Manchester Square—Manufacturers.

Carved oak chimney piece, for the drawing-room at thin castle, designed by Henry Clutton, Esq., architect. Carved oak altar chair, covered with crimson velvet, embroidered with gold, for St. Bartholomew's church, Ekham; the gift of Miss Leigh. Designed by Ewan rustian, Esq., architect.

CATTLE, J., Bererley—Designer and Manufacturer.

Elizabethan wash-stand New pattern wash-hand stand, English oak, ornamentally turned and carved.

dessert and wine; a massive candelabrum forming the centre ornament; the whole ornamented in foliage, birds, &c. This plateau is represented in the Plate 42, p. 746.

4. A carved library chair, in walnut tree, covered in velvet.

11 SIEBE, A., 5 Denmark Street, Soho—Manufacturer.

A carved flower vase, made of the wood and metal of the Royal George.

13 EARP, EDWARD, 15 Chester Terrace, Chester Square—Manufacturer.

Ornamental rustic oak chair. Miniature chair and stool.

14 RIDDLE, THOMAS, 54 Wells Street, Oxford Street—Manufacturer.

Invalid wash-stand, of maple, for persons confined to bed, forming a small table or stand; may be used in the ordinary way by attaching the long turned legs.

15 BROWN, J. M. & T., 165 Piccadilly—Inventor.

Patented suspensory chair, forming a couch or camp bed. Adapting itself to every movement of the body; fitting closely the back and loins, and giving great support and rest to invalids, or persons afflicted with spinal complaints; it is also of essential service to the military profession, from its portability and several uses.

16 DIXCE, THOMAS, 14 Salisbury Place, New Road—Inventor.

Self-swinging cot, or cradle for infants (or invalids). Model of a fire-escape.

17 THURSTON & Co., Catherine Street, Strand—Designers and Manufacturers.

Slate-top billiard-table, with patent cushions, made of Spanish mahogany, on eight massive legs, which, together with the frame and panels, are carved and perforated in the styles of Elizabeth and Francis I. This table is represented in the following engraving.

Marking-board and cue-rack en suite.

21 THE GUTTA PERCHA COMPANY, 18 Wharf Road, City Road—Patentee.

Table and pier glass in gutta percha ornament, in the natural colour.

22 HUTCHISON, EDMUND, High Wycombe, Buckinghamshire—Producer.

Antique arm chair, of oak, with carved ornaments, carved pillars, stuffed silk velvet seat and arms. The carved work executed by Edmund Hutchison, jun.

23 LOVEGROVE, H., jun., Slough, near Windsor—Inventor.

Portable expanding chair, of cane and English ash. By moving the thumb-screw in the seat, it is raised to any suitable height; by moving the other screw, it is made to fold up altogether.

Portable sofa chair, of cane and cherry-tree wood. Portable chair, of English oak.

- 24 **FLEET, J., Tenterden, Kent**—Inventor and Manufacturer.
Bed-post, specimen of spiral turning with a common lathe and sliding apparatus. Invented by the exhibitor.
- 25 **GRUBB, F. C., Banbury**—Manufacturer.
Carved bread platters for the dining-table. Ladies' work-table, with portable needlework frame of English walnut, the inside of sycamore.
- 26 **STARKEY, THOMAS, Furthngoe, near Banbury**—Manufacturer.
Table, convertible into a bedstead, wardrobe, bed table, suite of drawers, seat, closet, and a sponge bath. Curious tables as specimens of British woods.
- 27 **EVEREST, JOHN, Tunbridge, Kent**—Manufacturer.
Patent ottoman, convertible into a chair, with commode enclosed. Invented and patented by Everest and Osborne, Tunbridge, Kent.
- 28 **ROSE, ELIZABETH, Oxford**—Producer.
Screen embossed on both sides, convertible into a chess table.
- 29 **SHACKLOCK, G., Bolsover, near Chesterfield, Derbyshire**—Designer and Manufacturer.
Carved chair of native oak, illustrating by a series of heraldic devices the descent of the present Royal family of England from their Saxon and Norman ancestors, commencing with the arms of Edward the Confessor.
- 30 **LYON, W., Marlborough, Wiltshire**—Producer.
Iron compressed bedstead.
Compressed chairs and table.
Agricultural machine, constructed to plough, sow, manure, and roll the land in succession.
Stove, to bake, roast, boil, broil, fry, heat plates, &c., all at the same time.
- 31 **GEAKE, THOMAS, Sherborne, Dorset**—Designer and Manufacturer.
Model of an extending dining-table, on an improved principle.
- 32 **HORNE, ROBERT, 41 Gracechurch Street**—Manufacturer.
Registered drawing-room decoration. Oak decoration for a dining-room or library. Samples of dark knotted oak, pollard oak, maple, and satinwood, for paper-hangings.
- 33 **FOSTER, GEORGE, East Retford, Nottinghamshire**—Designer and Painter.
Panel for wall decoration, painted in encaustic. Panel in imitation of inlaid wood, for doors of drawing-rooms and decorated apartments.
- 34 **HUDSON, JOHN, East Retford, Notts**—Proprietor.
Rustic chair, designed and made by William Marsh, of Retford, of knots of wood taken from trees grown in Sherwood forest.
- 35 **LAMBERT, S., East Retford, Nottinghamshire**—Inventor and Manufacturer.
Mahogany easy chair, with new and simple mode of adjustment.
- 37 **FISHER, JAMES WHITING, Calvert Street, Norwich**—Manufacturer.
Loo-table, in veneer, of English growth, viz., walnut-tree curls, and intersected with laburnum tree, star, in centre, and border. It can be taken to pieces, ready for packing in case, in a few minutes.
- 37A **GUSHLOW, THOMAS, 34 Newman Street, Oxford Street**—Manufacturer.
Specimens on slate, in imitation of china, adapted for table-tops. Tea-trays of every description, in iron, papier maché, and other materials.
- 38 **FREEMAN, WILLIAM & CHARLES, London Street, Norwich**—Designers and Manufacturers.
An ornamental cabinet, secretary, and bookcase, carved in walnut wood and ebony.
The design of this cabinet is mixed, and combines a variety of figures—griffins, cherubim, &c.
It is represented in Plate 98.
- 39 **PUXLEY, WILLIAM, Norwich**—Designer and Manufacturer.
Ornamental flower-table, slate top, illustrated with painted views of Norwich; carved maple, and knotted oak-wood border, decorated composite pedestal and claws; with a dial affixed (detached lever), showing the time on the top of the table.
- 40 **FONNEREAU, KATE G., Ipswich**—Inventor and Designer.
Octagon box, in imitation of inlaid wood, applicable to pianofortes, &c.
- 41 **HANBURY, LOUISA EMILY, Ipswich**—Designer.
Slab, in imitation of marble, supported by carving in wood, representing a globe, surmounted by the Prince of Wales's coronet, inscribed with the motto "Ich dien." Produced by rubbing painters' brushes on a piece of board, after ordinary use for a twelvemonth, and then making a level surface with pumice-stone; and finishing with a coat of varnish.
- 42 **RINGHAM, H., Gar Street, Ipswich**—Manufacturer.
Rood screen, carved in oak for a church in Surrey. The design by Joseph Clarke, Esq., architect, 13 Stratford Place, Oxford Street, London.
Group of wheat and poppies, carved in lime-wood. A study from nature.
- 43 **WHYTE, W., Banffshire**—Producer.
Table and work-table.
- 44 **BATES, THOMAS HORROD, St. Albans, Herts**—Designer and Manufacturer.
Rustic loo table, supported by four pillars, the top showing two crowns, the letters V. R., the borough arms of St. Albans, &c., composed of upwards of four thousand pieces of English wood—oak, maple, hazel, willow, and crab.
- 45 **ABBOTT, J., Horse and Groom, Crouch Street, Colchester**—Producer.
Inlaid pentagon table. Inlaid table with carved pedestal, the sole work of the exhibitor, by trade a blacksmith.
- 46 **CHEEK, WILLIAM, Suffron Walden, Essex**—Designer and Maker.
Ebony cabinet inlaid with ivory, a repository for small curiosities, as coins, medals, and jewels, forming a central piece of furniture with six façades or fronts, three with open drawers, and three inclosed with doors, each division being separated by column and pilasters. The plan is an intersection of ovals, convex and concave, with drawers between each pedestal.
Ebony cabinets, inlaid with ivory, of hexagonal shape, showing front on its six sides, with rising dome for secret partition.
- 48 **GARTHWAITE, W., Darlington**—Producer.
Imitations of various woods, in painting.

TT, GEORGE, *Ryde, Isle of Wight*—Inventor and Manufacturer.

Reading-table, by which an invalid in a recumbent position can read with as much facility as when sitting; also a music-stand, table, or screen.

1, HENRY, 31 *Broad Street, Bath*—Designer and Manufacturer.

Walnut pollard-oak table, supported by four dolned with foliage of oak, and ornamented with English devices; in the centre of the top is a star, with Prince of Wales's plume, garter, and motto, manufactured by Messrs. Chamberlain & Co.

Walnut-tree easy chair, with porcelain panel in the back which is carved the rose, shamrock, and mounted by a lion, and ornamented with The seat of crimson satin, embroidered with roses.

Walnut-tree drawing-room chair, with porcelain on the back, ornamented with marquetry, white embroidered with the rose, shamrock, and

LAN, WALTER, 60 *Middle Street, Brighton*—Inventor.

A circular roller-blind of improved construction.

MEER, RICHARD, *Brighton*—Manufacturer.

Is of mahogany and oak-staining on deal.

1, E., *Mount Ephraim, Tonbridge Wells*—Manufacturer.

Table; a mosaic of 110,800 pieces, composed of 17 woods in their natural colours: English—acacia, oak, laburnum, sycamore, walnut, ash, grey holly, laurel, and oak and birch in a partial decay; Foreign—tulip, bar, natural f, cocus, black ebony, green ebony, Madagascar-canary, fustic, orange, partridge, and rose-

rope table; a mosaic of 129,500 pieces, comprising the following woods in their natural colours: arberry, white holly, grey holly, laburnum, yew, chestnut, hawthorn, furze, broom, laurel, ash, birch, walnut, and oak and birch in a partial decay; Foreign—tulip, king, black ebony, y, palmyra, partridge, prince's, canary, Botany Bay, fustic, orange, zebra, cam, bar, and natural. Design: birds (North American), grosbeak and oriole.

and, with drawer. Designs:—Butterfly, native and India, name *Iphia lucippe*—a mosaic of 100,000 pieces of English and foreign woods in their natural colours; and butterfly, native of Amboyna, name *Vanessa*—a mosaic of 12,000 pieces of English and foreign woods in their natural colours.

1, the centre is a mosaic of 15,000 pieces of 11 foreign woods in their natural colours, and a portion of the ruins of Bayham Abbey, near Wells, the property of the Marquis Camden.

MEER, JOHN, 4 *James Street, Bath*—Designer and Manufacturer.

Revolving dining-table, of walnut, with port flaps; the centre part revolves, while the outer, or flaps, remain stationary.

FALL, MRS., *Hawthorn Hall, Bradford*—Producer.

Flowers painted on marble in gilt frame.

MEER, EDMUND FRANCIS, *Bath*—Designer and Manufacturer.

Cabinets, composed of ebony and various woods, relieved with gilded mouldings. The drawers of Florentine mosaic.

Ebony bracket-sconces for lights, relieved with gilding and malachite.

Suspending cabinet, made of English oak enriched with carving and gilding.

Cabinet nest of drawers, of English oak and ebony.

Console table, the stand modelled from an original design.

59 PALMER, HENRY, 5 and 6 *James Street, Bath*—Designer and Manufacturer.

Registered loo-table in walnut wood; the stand carved in bold relief, in the Italian style, with dancing boys; strength and lightness of outline are combined. Occasional table, *en suite*. Sideboard, in English dark oak, carved in relief, in the Italian style, with emblematical representations of the four seasons, &c.

61 KING, C., *Tonbridge Street, New Road*—Producer. Decoration window.

62 CLARKE, & Co., 29 *West Street, New Road End, Leeds*—Inventors.

Covering for the walls of apartments. It is made upon the wall, and presents the appearance of superfine cloth. Its surface is entirely seamless, whatever be the size or shape of the room.

62A HOLLAND, W., & SONS, *Stained Glass Works, St. John's, Warwick*—Manufacturers.

Imitations of inlaid marbles, in wood decorations and table tops.

63 HALL, THEODOSIA, 1 *Baring Place, Exeter*—Designer and Executor.

Cheval-screen, ornamented with a group of flowers from nature, and intended to illustrate a new style of working in Berlin wool.

64 AZULAY, BONDY, *Rotherhithe*—Inventor.

A Berlin pattern, printed in one colour, from which needlework of various colours and shades can be worked. On a sheet of paper are glued single threads of wools, the shades of each colour, in rotation. The colours are lettered, and the shades numbered; the squares in the pattern are then filled in with a number and a letter, according to the particular shade of colour required.

New pattern for dissecting puzzles; the pictures in geometrical figures.

65 TANNER, W., 3 *Hartington Place, Bath*—Producer.

Carved rigo and pollard oak cabinet, style Francis I., adapted for a drawing-room.

66 STOPHER, T., *Saxmundham*—Designer and Manufacturer.

Reading, writing, and dressing desks.

67 HERBERT, W., *Market Street, Oxford*—Designer and Manufacturer.

Occasional table, of British oak, the growth of Stanton St. John Wood, near Oxford.

Reading-table, with elevating top, of British oak, of same growth.

Cabinet, also of Stanton oak, combined with glass and or-molu. The interior adapted for papers, coins, jewels, &c. The work of two deaf and dumb youths, and the ornamental part carved by a person similarly circumstanced. The castings are by Messrs. Marsh, of Dudley, Staffordshire.

Cabinet, of Oxfordshire walnut, with similar combination of wood and glass.

Lounging-chair, of Stanton oak. The back can be raised or depressed at pleasure.

- 69 HOCKENDON, J., 15 *King Street, Oxford*—Inventor and Manufacturer.

University telescope reading-table, capable of being adjusted to any height.

- 70 SPIERS & SON, 102 & 103 *High Street, Oxford*—Manufacturers.

Specimens of decorated papier maché, consisting of tables, cabinets, fire and hand screens, albums, writing-portfolios, desks, envelope-cases, work-boxes, card-trays,

panels for internal decorations, &c.; ornaments views of Oxford and its neighbourhood. Upwards of 100 subjects are introduced, consisting principally colleges, public buildings, college-walks and general views of the city.

Specimens of University inkstands.

An ornamental fire-screen of papier maché, with in Oxford, the Martyrs' Monument. This is represented in the following engraving.



Spiers & Son's Ornamental Papier Maché Fire-Screens.

- 71 HEYWOOD, HIGGINBOTTOMS, SMITH, & Co., *Hyle Road Works, Manchester*, and 62 *Watling Street*—Manufacturers.

Specimens of registered paper-hangings, manufactured by machinery, in which fourteen cylinders were employed; the cylinders employed can be made to produce a still greater number of colours, and each colour is made to fall precisely into its proper place.

- 72 WARNER, M. R., *Stanton Harcourt, Witney*—Designer and Manufacturer.

Rustic table, inlaid with 1851 pieces of ivy wood.

- 73 WOODMAN, H. G., *Melksham*—Inventor.

Carpet strainer.

- 74 POTTER, C. H., & E., *Over Darwen, Blackburn* 30 *Budge Row*—Designers and Manufacturers.

Patent paper-hangings, with registered design this invention, upwards of ten colours are produced by machinery and blocks.

- 75 JOHNSTON & Co., *Quay Street, Bristol*—Designers and Manufacturers.

Improved straw mattress for lath and iron beds.

- 76 SPURRIER, C., *Bristol*—Designer and Manufacturer.

Cabinet chiffonnière of walnut wood, carved on a vase of flowers, of pearl inlaid in ebony, the top open with plate glass.

AREAS I. J. 19 TO 25; L. TO O. 21 TO 24.

ir, with self-adjusting back and leg-rest, covered in satin damask.
 ped ottoman, spring stuffed in brocatelle.

KATON, Miss, *Edinburgh*—Producer.
 same ornaments, made of embossed leather.

ARTHUR JAS., 135 *Stephen's Green, Dublin*—
 Designer and Manufacturer.

Irish bog-yew decorative furniture, designed
 the history, antiquities, animal and vegetable
 s. &c., of Ireland.
 cabriolet sofa, with chimeras at front com-

posed of head of Irish wolf and hoof of the giant deer,
 both animals now extinct. The back surmounted by
 war trophy, with badge of the order of St. Patrick. The
 pillows in form of shamrock, covered in Irish tabinet.

No. 2, an occasional table, the top curvilinear and
 moulded, presenting a fine specimen of the delicate and
 beautiful figure, close grain, and susceptibility of high
 polish of the bog-yew. The frame and pillars elaborately
 carved: bards' heads at four corners. The centre of the
 stretcher ornamented by a group representing the destruc-
 tion of the wolf by the Irish wolf-dog. The massive pillars
 and claws enriched by scrolls, foliage, rose, shamrock,
 and thistle. This table is represented in the cut, with
 the timepiece mentioned in No. 12, placed upon it.



Jones's Irish Bog-yew Occasional Table and Timepiece.

circular table, exhibiting a singular fine speci-
 wood, supported on tripod, decorated with
 and crown, fruit, flower-work, &c. The frame
 elaborately carved, and antique moulding on

giant deer on the heights. The article being specially a
 lady's piece of furniture, the appropriate legendary bailed
 of—

"Rich and rare were the gems she wore,"

teapoy: this article, forming a receptacle for
 duce, has been designed to represent the
 umber of Ireland. accordingly, a figure of
 is placed on the summit, surrounded by the
 Ireland. Emblematical busts, copied from
 figures on the south front of the Custom-
 blin, representing the four divisions of the
 ish the four corners; and behind each, on
 he teapoy, are groupings characteristic of the
 identic, and literary genius of the four great
 'the ancient world. The intermediate spaces
 scimens of their most remarkable vegetable
 s. The front panel, in bas-relief, represents
 viting Commerce (symbolized by a Tyrian
 alley) to the shores of Ireland. she is seated
 e basalt cliffs of the Giant's causeway, the

by Thomas Moore, Esq., furnish three scenes to enrich
 the other fronts. The support of this teapoy presents
 the chase of the giant deer by wolf-dogs: the animal
 appears bounding through the oak forest and suddenly
 entangled by his antlers—the dogs rushing to their prey.
 The cut (p. 736) represents this teapoy.

No. 5, an omnium, containing three plateaus, on
 massive and carved base and claws, from which rise
 two end standards, formed by an Irish spear entwined
 with shamrocks; a tray round three sides of top, enriched
 by open foliage-work of ivy, arbutus, yew-tree, old round
 castles, copied from existing ruins, connect the corners.
 This omnium is represented in the cut (p. 736), sur-
 mounted by No. 6, a statuette of Her Majesty.

No. 6, a statuette of Queen Victoria ornaments the
 top of the former article. Her Majesty sits on a chair



Jones's Irish Bog-yew Tea-poy.



Jones's Irish Bog-yew Omnium and Statuette.

of state, holding a sceptre of peace in her right hand, and in her left a wreath composed of rose, shamrock, and thistle. The British lion supports the throne on the right, couchant upon the imperial shield; and the Irish wolf-dog on the corresponding side looking up with attachment to the Queen, his fore-paws resting on a heart-shaped, shield engraved in Irish characters, *Cushla Muchree*, "Vein of my Heart." A canopy composed of the antlers of the giant deer, with *treasúra* of shamrock, surmounts the chair.

No. 7, an omnium to match the former one.

No. 8, a statuette of Brian Boruighme, "Brian Boru," monarch of Ireland, surmounts this article. He is represented on the victorious field of Clontarf, with his battle-axe in his right hand, in an attitude of defiance, and in the act of trampling upon the broken Danish banner and ensign. The monarch appears in the appropriate costume and armour of his time; the wolf-dog reposing on the shield after the battle, with the sun-burst beaming forth, emblematic of better days, is among the accessories.

No. 9, whist table. The pillar and claws carved with rose, shamrock, and thistle, scrolls, foliage, &c.

No. 10, loo table to match.

No. 11, lady's work table, supported by crest and antlers of the Irish giant deer. A collar of shamrocks terminates the bust. A bouquet of Irish wild flowers enriches the front of the pit. The top displays the variegated and beautiful figure of the Irish bog-yew.

No. 12, a table, or bracket-stand for timepiece. From the base rises an oak tree, whose branching foliage forms the receptacle for the clock. On the right hand is a figure of Hibernia leaning with one hand on the head of the wolf-dog, and from the other depends a scroll, inscribed with the national motto, *Erin-go-bragh*, or "Ireland for ever." On the left hand is a figure of Time, with expanded wings, and whose scythe, made of Irish silver, has inscribed on the blade, in Irish gold letters, another national motto, *Fíogh-as-Borghlagh*, "Clear the Way." The block on which it rests is constructed for a barrel organ to perform six old Irish airs, and rests upon winged globes, emblematic of the world itself passing away with the lapse of time.

The timepiece has its dial of Irish fine gold, and the hands of Irish silver; the hours are marked by Irish diamonds, and the minutes by Irish pearls; a beautiful specimen of Irish malachite of copper forms the centre. The clock, and the blade of the scythe of "Time," were manufactured by Messrs. West and Son, goldsmiths and jewellers, College-green, Dublin. This timepiece is represented standing upon the occasional table No. 2.

No. 13, pair of pole fire-screens, on tripods composed of three bustos with helmeted heads; surrounding pillar and pole, terminating with copy of an antique bronze spear head—the original in Royal Irish Academy's Museum. The mounts consist of chivalric shields enriched with bustos, scrolls, rose, shamrock, and thistle. The looking-glass panels form the field on which is sculptured in demi-relief, on the one, the ancient Irish horn, or

med warrior; and on the companion the gallow-
or heavy-armed warrior. These fire-screens are
nted in the annexed cut.



Jones's Irish Bog yew Fire-screens.

14, a fauteuil, or arm-chair. Chivalric busts of



Jones's Irish Bog yew Arm-chair.

(Irish warriors form the outline of the back, and

the ancient arms of Ireland, as given on the authority of
Sir William Betham, Bart., are in the centre. The elbows
of the chair formed by wolf dogs—one at ease and re-
cumbent, with the motto on the collar, "Gentle when
stroked;" the other irritated, with the counter motto,
"Fierce when provoked." This chair is represented in
the preceding cut.

No. 15, a specimen drawing-room chair. To match the
above, one of a set of eight, the remaining seven being in
progress.

No. 16, a semicircular, or horseshoe wine table, sup-
ported by the harp of Brian Boru and bacchanalian
standards. The screen at the back ornamented by satyrs,
grapes, and foliage, vases of fruit, and the badges of the
three principal orders of knighthood, the Prince of Wales'
Plume in the centre, and the St. George conspicuous
above. In the centre of the screen is an historic sculpture
in high relief, representing the punishment of inhospita-
lity, or the abduction of the young St. Lawrence, heir
of Howth, by Granuwaile, the Irish princess, on her
landing at Howth, when returning to Ireland from the
Court of Queen Elizabeth. Granuwaile having landed
proceeded to the castle for refreshment, when the gates
were closed, and the gate-keeper informed her the family
were at dinner, and no person could be admitted. Retir-
ing in disgust and irritation, and proceeding to the shore,
she met with a child in care of attendants, who, on in-
quiry, proved to be the young heir of Howth: she imme-
diately ordered her attendants to seize the boy: a sturdy
sailor conveys him to the boat at the stern command of
Granuwaile; the female attendants are in grief and dis-
may; the young heir is conveyed away to the west of
Ireland, and not restored for fifteen years; and then only
on condition that the gates of Howth Castle shall never
be closed at the dinner hour, a condition which is fulfilled
to this day. The scene of this remarkable transaction is
laid at the old landing-place of Howth, the spot where it
actually occurred, and the point of view selected, is where
the late King, George IV., first set foot on Irish ground.
The hill of Howth forms the background; Lord Howth's
castle being to the right of the spectator. The leading
objects on the acclivity of the hill, and the ruins of the
old abbey church, are shown.

Stretching out to the left, Ireland's Eye, with its con-
spicuous and picturesque craggy cliffs, is depicted from
nature. Around this picture, forming a sort of frame,
are objects in keeping with marine scenery, shell work,
coral, fishing apparatus, &c.

From the centre of the screen, projects an ornate rota-
tory coaster, composed of rich clusters of grapes and
foliage, and traverses the inner semicircle of the table.
Arising from the coasters are two aerial figures, the Irish
fairy man and woman, supporting an ancient Irish
weather, and pointing to the national motto inscribed
thereon, *Cead m'le faile*, "A hundred thousand wel-
comes."

The ancient Irish entertained a strong superstitious
belief and reverence of "Fairies," or "Good People,"
attributing virtues and vices, with their corresponding
rewards and punishments, to their influence; so that every
propensity, whether bad or good, resulted from their
enchantment. They are represented on the coaster as
exercising their bewitching power to tempt the lovers of
the "pure blood of the grape" to exceed due bounds.
In this period of their progress they appear in celestial
forms and with captivating smiles; but having accom-
plished their purpose, they are capable of assuming the
most malignant and hideous aspects, and inflicting deadly
punishments.

No. 17, a sarcophagus wine-cooler, or garde-vine, sculp-
tured on the four sides, and enriched with bacchanalian
busts at the four corners, and also with fruit, foliage,
and appropriate emblems. A figure of Hibernia orna-
ments the top, with the accessories of wolf-dog, harp,
&c. The top is constructed to elevate by an improved
sliding stem and spring catch. This wine cooler is repre-
sented in the cut on next page.

No. 18, music temple. The ancient and modern Irish.



Jones's Irish Bog yew Garde-vin, or Wine-cooler.

being passionately fond of music, a decorative piece of furniture embodying this characteristic required importance and prominence; and, therefore, the ancient palace of Tara is selected as the proper theatre in which to display this subject, its halls having been celebrated by the ancient Irish poets as the scenes of music and festivity. A statuette of Ollamh Fouldla (Ollav Folla), the founder of the Irish monarchy, as also of the palace at Tara, B.C. 700, naturally surmounts the temple. He is represented, in his capacity of monarch and lawgiver, delivering the laws to the Irish nation; with his left hand he points to heaven as the source of his authority and inspiration, while in his right he holds forth the beechen boards, on which are inscribed passages from the Brehon laws, engraved in the ancient Irish character, and of which the following is a translation. The 38th section of the Brehon laws:—

"Seven things bear witness to a king's improper conduct:—an unlawful opposition in the senate; an overstraining of the law; an overthrow in battle; a dearth; barrenness in cows, blight of fruit; blight of seed in the ground. These are seven candles lighted to expose the misgovernment of a king."

He is seated on the *lia fail*, or enchanted stone, now reputed to be deposited in Westminster Abbey: he sits in the centre of a platform, representing all Ireland, which is mapped out under him, the coast-line exhibiting prominent scenery of the four provinces. The panel in front represents in relief the opening of the triennial convention at Tara (see *Four Masters*, page 297), in the reign of Cormac, "*Ulfada*," or "*Long Beard*," in the early part of the third century of the Christian era, and anterior to the introduction of Christianity into the island. Cormac sits in the centre of the hall, surrounded by ten principal officers of state, who always accompanied the monarch on state occasions, viz., the arch druid, distinguished by his long robes and wand or staff; the chief brehon, or judge, with his book of the law; and the chief noble, with his sword of state; the poet and the antiquary on the left of the monarch, with their scrolls; the state physician, with his rod and serpent coiled; the bard or minstrel, with his harp; and three stewards of the household, with wands, in the rear. The five provincial kings, with their heralds, form another circle, viz., the king of Leinster in front of the throne; the king of Ulster on the right; two kings—Upper and Lower Munster—on the left; and the king of Connaught behind the throne. The brehons, druidical priests, bards, princes, and various other estates of the kingdom, are grouped in their appointed and respective positions: the arms of the kings are affixed to the columns, and a perspective view is given of a hall 50 feet wide and 450 feet

long, crowded with the august assembly. At the opening of the triennial convention, Cormac is making a short oration, and all eyes are turned to him in silent and respectful attention.

The opposite panel represents the harpers in Tara Hall performing before the monarch and his queen, who are seated on a chair of state, with the young prince leaning across their knees; a canopy formed by the fossil antlers and skull of the giant deer supports the drapery; the surburst is embroidered on the back; heralds and a body-guard surround the king, and three maids of honour stand behind the queen; the harpers enthusiastically strike their lyres; an opening in the drapery discovers the undulating hills of Tara, and a round tower appears in the distance; the celebrated chandelier is suspended in the hall, and a miniature decoration of musical instruments ornaments the wall; the medallion portrait at the right end of the temple is that of Onaon, playing on his crowth, the first musician who accompanied the sons of Milesius to Ireland; the portrait on the left is Carolan, who may be regarded as the last of the Irish bards. His portrait is a copy, by permission, from an original in the possession of Sir Henry Marsh, Bart., and which is allowed to be a correct likeness; both these medallions are encircled by a wreath composed of oak, arbutus, and shamrocks. The statues at the four corners are personifications of vocal music, as it applies to war, pastoral life, the drama, and devotion.

The standards—the one emblematical of warfare, the other of pastoral life; the one presents a knight of the twelfth century leaning on his battle-axe, attracted by a lady of the court of that age playing on her guitar; a group of ancient Irish armour and weapons of war complete the standard. The corresponding one presents a country damsel with her milk-pail, and an Irish peasant, well-fitted in his dress of Irish home-made frieze. The remaining part of the standard consists of a beehive, sheaf of wheat, agricultural implements, and some of their peaceful and industrial products. The bases of the standards are engraved with ornaments from the harp of Brian Boru. The stretcher connecting the standards presents a fine decoration of ancient Irish musical instruments, accompanied on either hand by the mermaid and banshee, whose songs and cries afford large subject-matter for the old Irish poems, ballads, and legendary tales. The lower stretcher is ornamented in the centre by a bunch of shamrocks, embosomed in the heart of which are the letters V. and A., tied by a true lover's knot, and the date 1851 inserted. The four curious antique letters E. R. I. N. are copied from ornamental capital letters in the Book of Kells—one of the most ancient Irish manuscripts.

The whole subject forms a sort of chronological series,

encing 700 years B.C., the date of the foundation of Irish monarchy—touching the flourishing state of the kingdom under Cormac—passing through the heroic age of the crusaders, and ending with the most agricultural age of Ireland—the memorable year

79 MECHI, JOHN J., 4 Leadenhall Street—Manufacturer.

Articles in Coromandel wood, Spanish mahogany, rosewood, ebony, papier maché, Russia leather, &c., ornamented with gold, silver, cut glass, mother-of-pearl, carving, &c.

An ornamental and inlaid bagatelle table, represented in the following engraving.



Mechi's Ornamental and Inlaid Bagatelle Table.

lady's work table, fitted with every requisite, and very ornamental, represented in the next engraving.



Mechi's Ornamental Work table.

rising and dressing cases, work boxes, work tables, best, despatch box, stationery cabinet, knitting, &c.

80 MEDCALF, FRANCIS, 98 Bride Street, Dublin—Designer and Manufacturer.

Cabinet of oak, grown on the estate of Earl Fitzwilliam, Coolatin Park, county Wicklow, with top of Connemara marble, from the quarries of Ballinahinch, county Galway. The standards represent the Genius of Painting, with palette and brushes, Sculpture, with unfinished model; Science, with compass and chart, and Literature, with open book and pen, supported on shoots of palm. The branches continuing round the frieze are entwined with fruit, flowers, &c. to the centre, and hang in festoons at each end. In the centre of the frieze is represented "The Choice of Hercules;" on the back Peace and Plenty supporting a wreath of shamrocks, medallion likenesses of H.M. the Queen and H.R.H. Prince Albert, surmounted by Fame, and at the ends are Commerce and Industry.

81 MOLLOY, THOMAS, Belfry, Dublin—Producer
A rustic chair

82 CALVERT, GEORGE (late Butlin & Calvert),
Huddersfield—Painter.

Painted decoration in imitation of mahogany, oak (light and dark), satin-wood, and maple

83 AGGIO, G. H., Colchester—Producer.

White and gold ottoman, embossed wood and silk, in glass case

84 FLETCHER, EDWIN, Baydon, near Barnsley—Designer and Manufacturer.

Washable paper hangings, colours, granites, marbles, and stone.

85 HOLD, AMOS, Ardsley, near Barnsley—Designer and Carver

Fine frame for looking-glass, carved with fruit, flowers, and birds. English oak letter press, carved with a bunch of grapes.

87 ALLAN, D., *Sloane Street, Chelsea*—Inventor.

The registered melior; an appendage for chairs, to hold gloves, fans, bouquets, &c., while ladies are at dinner.

88 GAUNT & SON, *Wortley, near Leeds*—Inventors and Manufacturers.

Decoration for library, dining and drawing rooms. Durable and fixed colours.

89 LAW & SONS, *Monkrell Street*—Manufacturers.

Specimens of decorative paper.

90 COLLINSON, GEORGE CROYSER, *Doncaster, Yorkshire*—Manufacturer.

Hall or library chair, of fossil oak, found in making a cut from the river Don, near Doncaster, Yorkshire, in 1848; carved to represent oak branches, leaves, &c.

91 INNES, ELIZABETH & SURANNA, *Castle Street, Montrose, Scotland*—Designers.

Screen, with rosewood frame, four feet four inches high, the glass thirty-three by twenty-five inches. The screen is white watered silk, with wreaths and basket of flowers, intended to display the colours and plumage of the feathered tribes. The design is new; the flowers represent a variety of different kinds, from the passion-flower to the snow-drop. The plumes that adorn the little crown near the top of the screen are obtained from the crest of the peacock. The feathers in the screen are all obtained from birds of the county of Forfar. The frame was made by Messrs. F. J. & F. Japp, Montrose.

92 DINHAM, ANNIE, *Cumelford*—Proprietor.

Fancy work-table, veneered with tulip-leaves.

93 CAMERON, G., 11 *Shepherd's Market, Mayfair*—Producer.

Specimens of decorations.

95 HASELDEN, WILLIAM, *Chelsea*—Designer.

Specimens of designs for paper.

96 CRAWFORD, JAMES, 242 *Stobcross Street, Glasgow*—Designer, Inventor, and Manufacturer.

A mirror, composed of plane tree, made by the exhibitor.

97 NEWTON, W., 226 *Argyll St., Glasgow*—Proprietor, Designer, Inventor, and Manufacturer.

Loo-table, composed of nearly 7,000 pieces of foreign woods. Several relics in pieces of wood from the Royal George, old London-bridge, Wullie's-mill, birks of Aberfeldy, broom of Cowden Knowes, Queen Mary's box, old Glasgow-bridge, 500 years old, Glasgow cathedral, &c.

Table, composed of 18 different kinds of wood, all the pieces are inlaid.

Chiffonnière, composed of above 4,000 different pieces and 18 different kinds of foreign woods, representing the Queen and Prince Albert. Fourteen relics of wood.

Tea caddy, with profile of Her Majesty at 18 years of age, composed of 1,340 pieces of wood.

98 IMRIE, PETER, *Perth*—Manufacturer.

Circular loo table, on pillar and claw, made of the root of a larch tree raised near Murthly Castle, Perthshire.

99 ALEXANDER, JOHN TOD, *Maxwelltown, Dumfries*—Producer.

Ornamental garden chair of roots and branches of the oak.

Picture-frame of roots and branches of the laburnum-tree, for a Scotch romantic scene, with huntmen and game.

100 HAY, J. & J., *Aberdeen*—Designers and Manufacturers.

Gilded and emblematic national picture-frame.

101 SCRYMGEOUR, HENRY, *George Street, Edinburgh*—Designer and Manufacturer.

Model for a British state bed, with canopy, Elizabethan style. The entire framework of the bed with canopy is carved in pine and plane tree, and the materials used in the upholstery are chiefly of Scottish manufacture. The blankets are of the finest Cheviot wool, and the sheets of finest Tweed linen. The canopy is made to extend at pleasure, and is shown partly extended. The roof is ventilated by tubes, terminating in the cross at the top of the crown.

102 WARRACK, HARRIET, *Dee Street, Aberdeen*—Designer.

Ornamental fire-screen.

103 KER, W., *New Inn Yard, Tottenham Court Road*—Producer.

Table and table top, inlaid.

104 BARRIE, JOHN, *Edinburgh*—Designer and Producer.

Carved book-tray, executed by a ploughman, in the evening, by candle-light, after working hours without the aid of any model or design, the use of any instrument or machinery, but a penknife.

105 WOOD, J., *Collingwood Street, Blackfriars*—Producer.

Table-top, &c. in marquetry.

106 LITHGOW & PURDIE, 60 *Hanover Street, Edinburgh*—Designers and Producers.

Specimen of panel for a decorator's saloon; style—Renaissance.

One ceiling and two wall panels for an ingoing; style—Louis Quatorze.

General design of corridor, for which the preceding articles were executed, showing the position of the details.

Sketch for drawing-room decoration; style—Pompadour, time of Louis Quinze.

Drawing-room decoration, painted in distemper—The seasons.

Drawing-room ceiling, painted in distemper; style—Rococo.

Two painted chess, in imitation of mosaic and buhl.

Panel in imitation of buhl; decoration for library walls, &c.

Decoration in imitation of inlaid marbles, for entrance halls, &c.

107 ROSS, DANIEL, 11 *Norton Place, Edinburgh*—Producer.

Carved oak sideboard, with a figure on each door, representing Plenty, and one on the back surrounded by fringe and foliage. Strong portable chair.

108 BONNAR & CARFRAE, *Edinburgh*—Manufacturers.

Specimens of painted decorations.

109 CARSON, WILLIAM, *Stirling, Scotland*—Designer.

Specimens of wood painted in imitation of mahogany, maple, and oak.

110 FRENCH, GILBERT J., *Bolton*—Designer, Producer, Manufacturer, and Proprietor.

Velvet cover for communion-table, with cushions, service-books, carpet, and wall-hangings; the ornamental devices are of the period of the Reformation. Altar vestments of crimson velvet, with corresponding kneelers, service-books, linens, and wall-hangings. Episcopal chair, after an ancient example in York Minster. Fair linen cloths, for communion-table, damasked. Ecclesiastical banners of the provinces of Canterbury and York. Kneeling hassocks for benches and pews. Heavy curtains for church-doors, to supersede inner doors.

C. E., Bradford, Bolton—Manufacturer.
made of a new combination of known interior decorations for ceilings, walls, window-cornices, &c., exhibited for taste, and facility in working.

D. MATTHEW, 2 Broad Street, Halifax—Designer and Manufacturer.
ornamented in representation of the vine.

WILLIAM ATKIN, Whitehaven—Designer, Inventor, and Manufacturer.
Oldenbuck's Cabinet, from Sir Walter of The Antiquary, made from three varieties of grown in Cumberland

CHAEEL, JOHN, William Street, Workington, Cumberland—Designer and Producer.
chair of novel design, with birds and foliage, rampant lions, cut out of the root of oak, back covered with crimson velvet, and by George Haines, Esq., Grosvenor Row,

I. T., Bradford, Yorkshire—Designer and Manufacturer.
and hat-stand combined; table supported by winged lions, with carved front, marble slabella recess, and water receptacle. The whole mahogany, and decorated with other orna-

oom chair, carved in solid mahogany and nted at top with the rose, thistle, and sham; the seat covered with fine satin damask. et of flowers woven in silver.

EW, D., Truro, Cornwall—Producer.
le and two stools.

GOLD, THOMAS, Hinckley, Leicestershire—Manufacturer.
revolving top, made of a curiously gnarled in Warwickshire, supposed to be many cen Upwards of six hundred figures fantastically the natural curl in the grain of the wood surface of this table. In the centre a group, resemble Adam and Eve, the Serpent, and

JOHN, 59 Milk Street, Bristol—Manufacturer
table of inlaid woods, containing a repre the battle of the Nile. This table is 5 feet the body being composed of walnut wood d pieces comprising a great many varieties of them being dyed. It contains a picture of ch prisoner describing the battle, the flags us British ships engaged, and some of the yed in action; also Fame crowning Nelson.

IESON, R. R., Stirling, Scotland—Designer.
lobby-table top, painted in imitation of va s. In the centre are the Royal arms, in the of the Duke of Argyll, the Duke of Mont rquis of Breadalbane, and the Earl of Marr, panel, those of Lord Abercrombie and the tirling.

Y, J. CLOWES, 4 Exchange Street, Manchester—Designer and Manufacturer
gold, designed for the engravings of Sir seer's "Peace and War."
signed for water-colour drawing, with tinted out the subject, adapted for drawing room

esigned for a tableau of studies of various artist in water-colours, and adapted for n or boudoir.

A frame designed for two drawings of different forms, in two compartments. A frame designed for a single drawing, differently ornamented, with tinted mat. A circular table, in gold, the top of which displays seventy-four landscapes, painted in oil by J. B. Pyne—views from nature, the centre one being a view of Clifton. A frame, composed of the vine, adapted for fine engravings. A frame designed for Sir Edwin Landseer's portrait of the Queen and children. A light panel frame, with tinted spandril, designed as a simple frame for water-colour drawings. A semicircular topped frame for drawing-room, composed of lilies of the valley, &c. A frame for drawing in chalk (Lady Blessington, by D. MacIae, R.A.), with flower sides. A frame designed for Lawrence's engraved portrait of Sir R. Peel. A light frame, with ivy entwined, adapted for chalk drawings. A panel frame (for study of "Manchester," by D. Cox), showing tinted mat inside. A frame adapted for old-master drawings, composed of fruit and flowers. An elliptical frame, designed for Eastlake's "Christ weeping over Jerusalem." A frame designed for Raffaele's "Madonna della Seggola," with lily top and palm base. A light panel frame, with tinted mat, for drawings. A small frame, intended for portrait of Burns.

Portfolio chair and prie-dieu, made of walnut-tree, by Joseph Leeming Grundy, 130, Regent-street.

122 DOVSTON, GEORGE, 106 King Street, Manchester—Designer and Manufacturer.

Ebony bookcase, carved in relief, with brass door frames, and plate glass; the frames made by Messrs. Cope and Collinson, of Birmingham

Boudoir chair of carved ebony, upholstered and covered with crimson silk velvet

Bijouterie cabinet in tulip and king woods, with Sèvres china panels in doors

Occasional table in walnut and tulip woods, with marquetry top.

Shaped circular table, in marquetry and tulip wood.

123 MOUSLEY, C. E., Haverton Hill, Tamworth—Producer

Mahogany table top 14 ft. 3 in. by 5 ft. 3 in. wide, in one slab.

124 STEEVENS, JOHN, Tunton—Designer and Manufacturer

Carved and ornamented cabinet.

This cabinet represents, in four male figures, the periods of youth, manhood, maturity, and old age, whilst other four (female) figures are representative of the seasons. All the figures are rendered complete by a carved lion's foot at the bottom of each, and above the foot is a connecting frame to make that portion of the stand perfect. Between the figures of Spring and Summer are carved flowers and fruit in profusion, emblematical of the seasons; it represents the all-important fact that time flies, by an hour glass borne on the wings of a splendidly carved eagle, and suspended from the bird's beak are the letters, curiously wrought, forming "Tempus fugit." This rests in a globe, representative of the earth, which is half sunk in a shell of water, overflowing the wheel of time, and shedding on fruit and flowers its refreshing dew. The space between the figures of Autumn and Winter is filled with carvings of the chrysanthemum, holly, ivy, and autumn fruit, entwined with consummate skill and taste. The garland, or festoon, which is carried through, and sustained as before stated by each of the four figures, is composed of every flower indigenous to Tunton and introduced emblematically to the time in which they severally bloom.

Above the figures, and resting on their heads, is a stand or frame to receive the top part containing the drawers, doors, &c. Over the head of Youth, in this frame, is a basket of strawberries, cherries, raspberries, and early fruit, surrounded with leaf work, enclosing a panel of needlework, covered with bent plate glass.

Over the head of a carved figure, representing Summer, is a basket, containing currants, strawberries, gooseberries, apples, pears, peaches, and other fruits, enriched with leaf-work, the lily and the rose completing the centre. Between the Summer and Autumn baskets and a panel are mottoes.

The autumn basket contains grapes, pears, filberts, &c., surrounded with leaf-work. The panel of needlework next appears for Winter, and over the head of the winter figure, is placed a basket of walnuts, medlars, &c. The cabinet contains about eighty drawers, in fine walnut wood, enriched with fuschia drops in silver, and coral beads for drop handles; the wood work is relieved with silvered plate glass, also small doors with plate glass for needlework, in wild flowers. This completes the interior of the frame.

The exterior represents three carved doors, in fine relief: over Spring and Summer is the convolvulus, entwined round the frame; then follows the centre door, in fine relief; the grape vine full of fruit, being very prominent. The door over Autumn and Winter is enriched with carvings of barley and hop vine. Between each of these doors are pilasters, forming four female figures, holding in their hands the emblems of the seasons. A newly-invented glass dome head, for the protection of knitted flowers in Berlin wool. The woodwork springs from each group of flowers over the heads of the female figures, with mouldings to receive the bent plate glass, and is enriched with fine carvings of fruit and flowers. At the extreme top of this glass dome stands a figure of Peace, with extended wings, bending over the globe, holding in one hand the olive branch, and with the other pointing upwards to heaven. The needle-work, executed on black velvet, from nature, by Miss Kingsbury. This cabinet is represented in the annexed plate, No. 138.

Four specimens of table-tops, made of English oak grown near Taunton, Somerset. Sideboard top, of the same material.

125 BAMPTON, JOHN AUSTIN, 49 Union Passage, Birmingham—Inventor and Manufacturer.

Specimens of a material produced from the mixture of moss or peat, in certain proportions, with sawdust, &c. It is subjected to a pressure of 800 tons, to make it fit for use; it then becomes hard and durable, and capable of being polished and worked.

Plastic material made from moss and lime, which has been submitted to a heat of 160 degrees without showing any crack or flaw; it can be used in a sheet or plastic state. Gypsum and cements may be used in producing similar articles. Specimens of compressed moss fibre.

[It has long been known that moss or peat, either alone or mixed with other vegetable or mineral substances, was capable of great compression, and sometimes exists in nature in an extremely dense, hard, and brittle state. In the manufacture of the materials above mentioned, advantage has been taken of the force of cohesion by bringing the particles of bodies into close contact under enormous pressure.—D. T. A.]

127 CLARKE, JOHN, Birmingham—Designer and Painter.

Heraldry painting; specimens showing various curious designs of armorial bearings, including seventy-four coats of arms and crests.

128 LANE, T., 91 Great Hampton Street, Birmingham—Manufacturer.

Articles chiefly in "patent pearl glass." Papier maché table, with inlaid border of mother-of-pearl and landscape and figure centre. Work-table, ornamented in pearl and gold. Cheval screen papier maché frame, with centre, flowers on white ground. Pole-screens. Reading-table. Cabinets on stands. Chess-table, &c.

Panels for ship cabins, rooms, and other decorations.

Specimens of patent gem painting on glass; invented by Miss E. Tonge, Boston, Lincolnshire.

[The patent pearl glass is distinguished by the richness of effect consequent on the introduction of the laminae of mother-of-pearl behind the glass on which the picture is executed; the picture is painted on the reverse side of the glass to that exposed, the parts being left blank or slightly coated with varnish, close behind which the pearl is introduced as a means of decoration.

Gem painting is also executed upon or behind glass, and much of its brilliancy arises from the obscuration around of the glass not ornamented; the reflective surface in this case is a metallic foil, and the depth of colour is heightened by transparent varnish colours.—W. C. A.]

129 DAVIES, GEO. C., 7 Brearly Street West, Birmingham—Designer and entire Producer.

Papier maché work-box, decorated in the Elizabethan style; illustrated with glass tablets of the monarchs from the Conquest; the tablets are partly painted, and partly transparent; the brilliancy of colour produced by stained polished metals.

Japanned papier maché box.

Glass tapestry panel, a new style of decoration for rooms, furniture, &c. Painted in transparent colours, backed with white and coloured satins, &c.

130 GILBERT, W., & Co., 114 Kingsland Road, and 26, 27, 28, Fleming Street—Manufacturers.

Economical invalid bedstead, exhibited for simplicity, ease, and cheapness; invented by the exhibitors.

Six globes, containing a series of feathers, quills, &c., illustrative of the exhibitors' chemical process of purifying feathers, viz:—1. Fine dust, as created by insects. 2. Pieces of quills, &c., as destroyed by insects. 3. Feathers not purified. 4. Feathers purified. 5 & 6. New feathers not liable to decomposition.

131 HALBEARD & WELLINGS, 45 St. Paul's Square, Birmingham—Manufacturers.

Papier maché toilette table of Elizabethan design, inlaid with pearl, and mirror corresponding with table. Loo table, embellished with group of English wild flowers and foliage. Occasional table, group of flowers, inlaid with pearl. Ladies' work-tables.

Large cabinets, inlaid with pearl ornaments, and embellished with painted vignettes. Albums, bound in papier maché boards, inlaid ornaments, and decorated with pearl flowers. Portfolios, various ornamental designs. Tea trays, various patterns.

Series, illustrating the different stages of manufacture from the raw material to the finished article.

[There are two varieties of papier maché: the best is produced by pasting together, on an iron or brass mould, a number of sheets of paper of a spongy texture, allowing them to dry between each addition. In the common variety, the paper is reduced to a pulpy substance, and the form is given by pressure into matrices of metal. Papier maché may be formed into any desired article by means of the lathe, the plane, or the rasp; it is several times varnished; and the irregularities of surface are removed by scraping and rubbing with pumice-stone. The artist then introduces the design; it is again varnished, and polished with rotten-stone; and its final brilliancy is given by rubbing with the palm of the hand.—W. C. A.]

132 FOOTHORAPE, SHOWELL, & SHENTON, Birmingham—Manufacturers.

Ladies' work-tables, with design, Buckingham Palace, and flowers and fruit, in pearl. Drawing-room ornament-stand. Reading and work table. Small cabinet, with flowers and fruit, in pearl. Writing-desks and ladies' work-box, pearl inlaid.

-boxes, with Windsor Castle, and flowers, in Folios, with flowers in pearl. Large inkstand, 16. Ladies' dressing-case. Card trays, inlaid Tea-chest and caddy, pearl inlaid. Card-case, ox, netting-box. Ladies' reticule. Pair of hand-Set of trays.

LEE, L., 118 Bedford Street South, Liverpool—
Producer.

7 table, painted in enamel on prepared wood; a group of flowers, with gold border.

THOMPSON & WORTHY, Durham—Manufacturers.
8' writing desk.

JAWES, BARTHOLOMEW, 20 Carlisle Street, Soho Square—Manufacturer.

gon loo-table. Small circular chess-table. Circular ith top, made of a rare species of cedar.
s toilet-table of tulip-wood, inlaid with purple fitted with china wash-basin, and drawers, the inclosed by a pair of doors, silvered glass panels; ry marble top, moulded edges, shaped back, with lass in centre; wrought panels on either side, with ss, mounted with or-molu in the renaissance style. t chair of tulip-wood, &c., to correspond, with seat and back covered in silk, &c.
ved mahogany stand, with china basin. A carved ny cupboard.
ls of the patent outside sun-shades.

McCALLUM & HODSON, 147 Brearley Street, Birmingham—Manufacturers.

er maché table, inlaid with pearl flowers, fruit, aments.

er maché sofa tables; one with the Exhibition g introduced.

iformia, music-stand, table, fire-screen, or reading "St. Cecilia." Card-tray, and flower-stand or

ret on stand, comprising chess and backgammon-ladies' work-table, writing-desk, and fitted for ry, coins, and writing requisites.

les in papier maché: cheval screen. Card-plate. ss' portfolio, chair, table, and pier-glass, inlaid. work-table.

meter, illuminated with pearl. Bracket-glass with lights.

es work-boxes, with paintings, "The Antiquarian" Pearl-flowers." Ladies' jewel-case, "doves and n;" dressing-case, view of Windsor Castle; and -desks, inlaid pearl flowers and shells, &c.

ic card-box, inlaid; and cabinets, with view of bk Castle; work-basket and tea-chest, view of bra, inlaid.

caddy, pearl flowers, landscape, &c. Papeterie. tand, pearl ornaments. Inkstand. tray, Queen's shape; new oval Gothic tray, Albert

inlaying of pearl in "papier maché" is a simple , and does not consist, as some might suppose, and name indicates, in cutting out the material and in- the substance inlaid; it is held simply by adhe- and its application may be thus described:—the hell cut into such pieces or forms as may be desir- laid upon the article to be ornamented, a little or other varnish having been previously applied, ces of pearl at once adhere to it; thereafter re- coats of tar varnish fill up the interstices and ally cover the pearl. This extra varnish is renewed, rm surface is produced, and the pearl exposed by g with pumice-stone, polishing with rotten-stone, ally "handing."—W. C. A.]

137 SUTCLIFFE, I., 27 Great Hampton Street, Birmingham—Manufacturer.

Ornamental papier maché trays, in various styles and sizes.

Papier maché loo-table, with subject, "Ruins of Carthage." "Louis Philippe" and round papier maché tables.

Chinese papier maché vases, with figures and gold ornaments.

Papier maché folios, caddies, work-boxes, inkstands, &c.

138 TURLEY, RICHARD, Birmingham—Manufacturer.

Large folding screen, exhibiting a combination of land- scapes, fruit, and flowers. Large loo-table with pearl wreaths, and painted landscape and cattle. Oval table with gold ornaments and flowers introduced.

Gothic tables, with fruit and flowers, "The village gate;" vine border and painted centre, "The Round Tower of Oberwesel."

Hexagon table, "The Wellington Shield." Round table, with painted landscape, "The windmill."

Large and small cabinets. Inkstands. Ladies' reticule. Ladies' perfumery cases. Tea-chest and caddy. Clock case and watch-stand. Music-folio, vine-border. Port- folio and writing-desks, all ornamented with pearl and gold, &c.

Large tray, intended to show the beauty and dura- bility of the papier maché, it being more than thirty years since it was produced.

Tray, antique shape, centre design copied from the Nimroud Sculptures in the British Museum.

Oblong antique Gothic tray, gold border. Ladies' work tables, ornamented with pearls, flowers, gold, and painting. Card-box. Dressing-cases. Cake-baskets.

Chairs, scroll back, pearl and gold, and Elizabethan shapes.

New Gothic table, painted centre, "Das Königliche Schloss, in Berlin." Writing desk, "Das Königliche Schloss, in Charlottenburg." Music-books, view, "Das Neue Palais in Potsdam," and "Das Königliche Schloss in Potsdam." Two small cabinets, pearl and gold. Ink- stand, flowers and gold. Portfolio.

Hand-screens—"Jenny Lind," "Sims Reeves." Tele- scope hearth-brush, patent slide toasting-fork, patent swivel. Pair of bellows, flowers and gold; another pair, painted landscape. Large and small vases, flowers and landscape. Portfolio—"Age of Innocence."

139 HOPKINS, ROBERT PIKE, Wimborne, Dorset—Designer.

Open fancy brass front-door knobs, dead and relieved, and lined with black china, and blue and white opal glass. Finger-plates, lined with silvered enamelled blue glass.

140 BROWN, JOSEPH, 71 Leadenhall Street—
Manufacturer.

A ship's bedstead.

141 SMITH, GEORGE F., March, Cambridgeshire—
Designer.

Specimens of painting, in imitation of various marbles, which are finished while the colours are wet. Intended as a substitute for marble in the construction of chimney- pieces, inlaying of tables, &c.

Painting, in imitation of oak, intended as a substitute for the wood in decorations.

142 SCHOLEY, Misses, 36 Westbourne Terrace—
Producers.

Gilt chair and stool, embossed in wool and silk.

143 DAVIS, GEORGE, Southampton—Designer and
Manufacturer.

Specimen of marbling, graining, painting, and var- nishing, on paper. There is no smell of paint or varnish, in using it, and a room may be completed in one day.

- 144 GORE, GEORGE, *Spencer-street, Newbury*—Designer and Painter.

A four-leaved folding screen, painted in the old English illuminated style, recording the most remarkable events of English history from the Conquest to the present time, and containing on the panels representations of various royal badges and arms, with those of the City of London.

- 145 BRILFABY, WILLIAM, *York*—Designer.

Cabinet of oak, having panels of burnt white wood, with subjects executed (by a manipulation analogous to carving and mezzotint engraving), viz., the "Descent from the Cross," after D. Ricciarelli da Valterra, and "Bearing the Cross," from Raffaele d'Urbino.

- 146 FINDLEY, CHARLES V., 36 *King Street, Leicester*—Designer and Manufacturer.

Carved chair of English oak, Leicestershire growth.

- 147 BARKER, GEORGE, 2 *Brook Street, Bond Street*—Inventor.

Perforated flexible screws, with nuts and hooks, for hanging pictures, at any required height.

- 148 MEAKIN, J. F., *Baker Street, Portman Square*—Manufacturer.

Registered chair.

- 149 COTTERELL BROTHERS, *Bristol*—Manufacturers.

Specimens of paper-hangings for a dining-room.

- 150 WELSH, THOMAS, *Furn Street, Birmingham*—Designer.

Lady's cabinet, in papier maché.

Writing-desk, toilet and jewel case, and work-box.

- 151 FLETCHER, RAYMOND, *Derby*—Inventor.

Crystal granite paper-hangings, adapted for halls, stair-cases, &c. These admit of being washed.

- 152 RAMUZ, ALEXANDER, 17 *Frith Street, Soho*—Producer.

Patent mechanical billiard dining-table, capable of being adapted to persons of any stature; also convertible into a dining-table.

Patent sofa, containing a mahogany bedstead, covered in green Utrecht velvet.

Model of a double bedstead. Model of a double ottoman. Model of a ship's bed, to modulate the motion of the vessel, and prevent sea-sickness.

- 153 RIVETT, WM., & SONS, 50 *Crown Street, Finsbury Square*—Designers and Manufacturers.

Mahogany pedestal sideboard.

- 154 HOPKINS, W., & SON, *Birmingham*—Manufacturers.

Shade, with improved action, stops at any point, with out the aid of hooks, is moved up and down with one cord, and is not liable to get out of order.

- 155 MINTER & CO., *Stoke-upon-Trent*—Producers.

Two busts in marble.

- 157 BIELEFELD, CHARLES FREDR., 15 *Wellington Street, Strand*—Inventor and Manufacturer.

Papier maché articles, manufactured by patent machinery. Large Corinthian capital. Bracket with figures. Royal arms. Dragon and eagle.

Bust of Flaxman. Bracket figure of an angel, glass frame, and girandole; with a variety of architectural ornaments, and embossed mouldings. Corinthian capital.

- 159 GREIG, EBENEZER, & SON, 27 *Farrington Street*—Designers and Manufacturers.

Winged wardrobe of fine Spanish mahogany, with internal fittings, carved pediments, trusses, doors, &c. The wardrobe is represented in the annexed engraving.



Greig's Winged and Carved Mahogany Wardrobe.

Smaller table, supported by storks, in enamel of white and gold, the top of painted glass.

Console table and glass of Italian design, inlaid with mosaic, to imitate the pietredure of Florence.

Small cheval screen, with a painting of flowers. Encoignure, consisting of shelves, supported by gilt dolphins.

Ornamental frame, made for Her Majesty, designed for the engraving of the portrait of His Royal Highness the Prince of Wales.

State inkstand of or-molu, inlaid with lapis lazuli and gems.

Cabinet of tulip-wood, inlaid, and enriched with mosaic.

Carpet, of Glasgow manufacture.

165 NUNN & SONS, 19 *Great James Street, Bedford Row*
—Designers.

Chess table, made of Italian walnut-wood, with bas-reliefs in electrotype silver. Chessmen, carved in ivory.

165A CUNNING, WILLIAM, *Edinburgh*—Manufacturer.

Improved iron rocking-chair, for the drawing-room, in gold, and covered with French brocatel (from Whytock's, Edinburgh). In this chair the spine and back are supported, and the head and neck rest in a natural position. Exhibited as a useful invention for invalids and others.

Models of bedsteads, one in brass lacquered, the other in iron, japanned in imitation oak, and in the French style.

166 BANTING, WILLIAM & THOMAS, 27 *St. James Street*
—Designers and Manufacturers.

Circular marquetry table, with likenesses of the Royal Family of England, painted in china, inlaid in the border of the top. The stand inlaid with marquetry, and carved, part gilt, and the whole mounted with or-molu ornaments.

Sideboard, made from oak grown in Windsor forest, on four carved truss supports, with silvered plate glass back, above, in carved frame.

Satinwood china cabinet, inlaid with marquetry, and brass mountings.

Secretaire cabinet of kingwood, with English china inlaid, and or-molu ornaments.

Oval table of Amboyna wood, with a marquetry border of sprays of jessamine, and brass mountings.

168 FOX, THOMAS, 93 *Bishopsgate Street Within*—
Manufacturer.

Bedstead of walnut tree, gilt, with lofty canopy and drapery of blue silk.

169 DURLEY, THOMAS, & Co., 66 & 67 *Oxford Street*—
Manufacturers.

Canopy bedstead of walnut-tree, in the Elizabethan style, with furniture of brocatelle, of English manufacture, and bedding.

170 SNELL & Co., 27 *Albemarle Street*—Manufacturers.

Chimney glass, the frame carved in walnut-tree.

Walnut-tree cabinet, for a library, arranged for the reception and division of papers.

Sideboard, with glass, and an oval cistern: the designs and models for the sculpture by Baron Marochetti.

Satin-wood wardrobe, with a glass enclosing the robe press in centre.

Oval table, with marquetry border, composed of natural woods, without staining. Library table. Carved fire-screen. Tea-poy, with marquetry and metal mountings. Work-table, with or-molu and china mountings. Small centre table of speckled ebony, with the same. Library sofa and couch, in morocco. Various patterns of chairs.

171 WEBB, JOHN, 8 *Old Bond Street*—Manufacturer.

Rock crystal vase and plateau, of the 16th century, with ornamental mountings of the present period, enamelled on gold by Mofel.

Pair of candelabra, of sculptured wood, gilt, with or-molu branches carrying 72 lights. One of these candelabra is represented in the accompanying Plate (41).

Elbow and single cabriole chairs, carved in walnut-tree, and finished in silk.

Chess table, in the Gothic style, carved in walnut-tree, inlaid with Minton and Co.'s tiles.

Stand for old inlaid top, carved in walnut-tree in the renaissance style.

172 BRAUN & Co., *Old Fish Street Hill*—Manufacturers.
Pedestal glass ornament.

173 SANDEMAN, GEORGE, 9 *Greenside Street, Edinburgh*
—Designer and Manufacturer.

The Holyrood seat. Design of an ottoman with rests, ornamented all round with thistle foliage, boldly carved in dark oak.

174 SMEE, WILLIAM, & SON, 6 *Finsbury Pavement*—
Designers and Manufacturers.

Mahogany canopy bedstead, in the Tudor style, with hangings of crimson silk, of Spitalfields' manufacture.

Maple wood bedstead, with hangings of blue silk. Cabinet in the Louis Quatorze style, of walnut, king and tulip wood, inlaid with marquetry, and mounted with or-molu, chased and gilt.

Cabinet of walnut wood, with veined marble top, and marquetry panel, surmounted by a glass, in a carved walnut-wood frame.

Set of St. Domingo mahogany extending dining-tables, upon carved standard supports, with the patent screw movement, by Hawkins, for opening and closing tables.

175 WATSON, G., 42 *Spring Street, Paddington*—
Designer and Manufacturer.

Octagon marquetry table, with ebony moulding; royal arms in centre, surrounded by ribbons, with trophies of arms and bouquets of flowers; border of the four seasons in scroll and flowers; and four sections in scroll, birds, flowers, and butterflies, alternately.

176 TOMASINI, D., 234 *Tottenham Court Road*—
Manufacturer.

Chair, with rich figured satin.

177 WERTHEIMER, SAMSON, 35 *Greek Street, Soho Square*—
Manufacturer.

Jewel-casket wrought into shape, pierced, richly engraved, or-molu mountings, malachite and different stone settings, finished inside with silk velvet, mounted on a gold carved stand, in the cinque-cento style. This casket and stand are represented in the cut on the next page.

Jewel-casket, with plateau, engraved in the cinque-cento style, with china inlayings.

Louis XIV. work-box, chased, pierced, engraved, gilt in or-molu, mounted with ornaments and porphyry.

Chased and gilt metal workbox, lined with velvet, pierced, in the Louis XVI. style.

Two candelabra for lights, with chased ornaments in or-molu, of the period of Louis Quatorze, one in metal, the other with china mountings.

Or-molu inkstand with pen tray, and China plaques, in the cinque-cento style.

Or-molu inkstand with pen tray, in the French style, with China plaques.

Embossed, pierced, and engraved inkstand, in the Queen Elizabeth style, mounted with malachite; and two China bottles.

Inkstand, in the style of Cellini, mounted with malachite, highly chased and richly gilt in or-molu.

Chased and gilt work-box, in the style of Louis XIV., pierced and lined. Paper knife, ornamented, chased and gilt.

Bell and match-box, richly engraved and gilt, with stone settings, in the cinque-cento style.

Bell, the Queen Elizabeth, chased, and set with different stones.



41. CANDELABRUM. MR. WEBB.



42. EXPANDING PLATEAU. MESSRS. JOHNSON AND JEANES.

the principal advantages of this process consist in the superior effect producible by the pencil, and the greater facility of using it instead of the saw.]

FLOURE, WILLIAM WALTER, 12 Poland Street, Oxford Street—Manufacturer.

Various imitations of japan work. Cabinet doors, folding fire-screen, in imitation of India japan, ornamented with gold and inlaid with mother-of-pearl. Table, painted in imitation of marble. Fancy table, inlaid with Persian work. Chess-table, imitation ebony ivory.

189 CLAY, HENRY, & Co., 17 & 18 King Street, Covent Garden—Designers.

Chiffonnière, in papier maché, ornamented in mother-of-pearl, gold, and colours; the panels, groups of fruits, and flowers.

Toilet-table and glass, in papier maché, new design and principle, with chair and footstool *en suite*. These are represented in the following engraving.

Table fire-screens with the centres in needlework. Multiformias, classical designs. Potpourri jars, pearl and gold. Tea-chest, ornamented in the Alhambra style. Lady's work-tray, gold and flowers. The Regency writing-desk, ornamented.



Clay, Henry, and Co.'s Papier Maché Toilet-table and Glass.

per tea-trays, from new models and designs. Chess-table in papier maché, the centre of glass, inlaid with mother-of-pearl. This table is represented in the illustration on the next page.

DIXON, J., 18 Broadway St., Holborn—Manufacturer. Papier maché table, inlaid with pearl, and ornamented with gilded gold, &c. Original design. Paper trays. Papier maché blotting book, ink-stand, and basket, for drawing-room table.

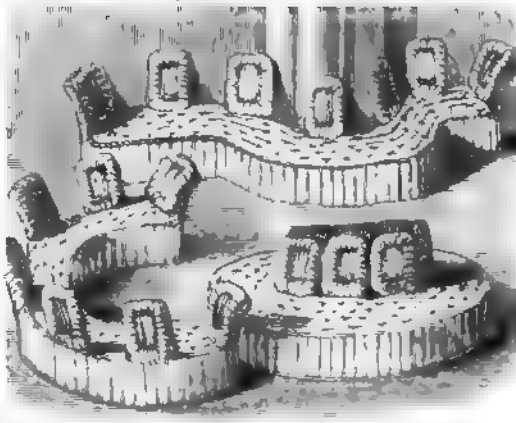
HOWELL, JAMES, & Co., Regent Street—Manufacturers.

Porcelain and buhl inkstand, with chased ornaments, exhibited as a specimen of buhl and or-nuoli, English workmen.

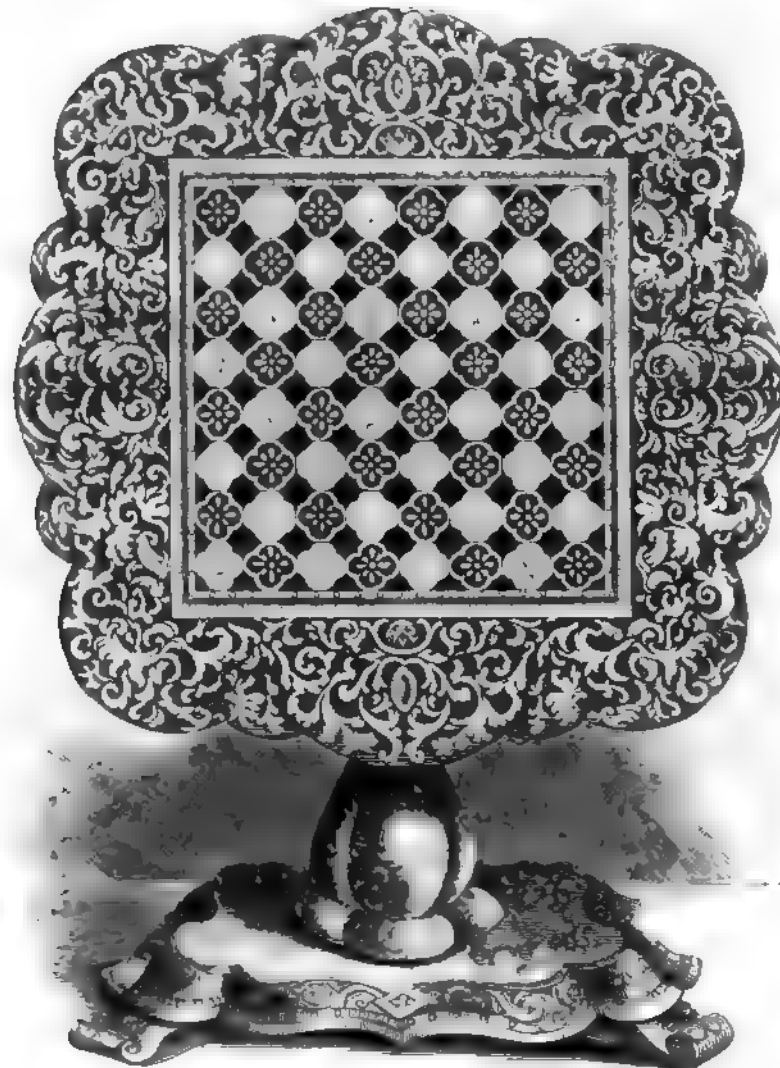
CHAPMAN, JOHN, 23 East Street, Lambeth—Sculptor. Carved oak Gothic looking glass frame, of the perpendicular style, possessing the flat arch. The figures in the frame are intended to represent the sense of sight; one is intended to be viewing herself in a mirror, the other is intended to be viewing a book.

SOWERBY & CASTLE, 29 Albert Street, Camden New Town—Inventors. Geometrical ottoman couch, constructed so as to assume

various forms of drawing-room seating. It may be placed against a straight wall or round a corner, to form a semicircle round the tea-table or fire-side, or to make a central circular ottoman. This couch in its various forms is represented in the following cut.



Sowerby and Castle's Geometrical Ottoman Couch.



Clay, Henry, and Co.'s Paper Mache Chess-table

193 **BOADELLA, JUAN**, 72 *Charlotte Street, Fitzroy Square*—Manufacturer.

Marquetrie table, applicable for a ladies' work-table, reading and writing desk, artists' colour box and easel, with screen attached.

Buhl cabinet, containing 15 drawers, 14 of which lock at the same time.

194 **WAKELING & SONS**, 36 *Gerrard Street, Soho*—Manufacturers.

Carved Arabian bedstead, in white and gold, with silk hangings.

195 **ROGERS, WILLIAM GIBBS**, 10 *Carlisle Street, Soho*—Manufacturer.

Carved glass frame, executed for the late Wentworth Beaumont, Esq., and exhibited by permission of Mrs. Beaumont.

Two glass frames enriched with dead game, emblems of the chase, and groups of fruit and flowers, executed for Wentworth Beaumont, Esq.; exhibited by permission of Lord Londesborough. Dead game.

196 **PRATT, SAMUEL**, *New Bond St.*—Manufacturer.

Carved sideboard, of English walnut, in the Elizabethan style; the marquetrie and fretwork cut by machinery.

Dining-table and dining-room chair to match. Protean dining-table. Parquetrie, or inlaid wood flooring.

Panelling, &c., manufactured in various designs and colours, by machinery. Ornamental Holland window.

Saloon commode of English buhl, inlaid with tortoise shell and colours, with or-molu mounts. Oval table, *en suite*. Gothic altar-chair, carved by machine.

197 **HANSON, SAMUEL & SONS**, 16 *John Street, Oxford Street*—Manufacturers.

Ornamental walnut-wood cabinet, with glazed door for the reception and display of china, bronzes, or art objects, surmounted with a carved glazed frame, in which are introduced various representations of birds, as the egret, bittern, blackbird, woodpecker, jay, magpie, cuckoo, and sundry small English birds, variously arranged on an oak and a chestnut tree, &c.

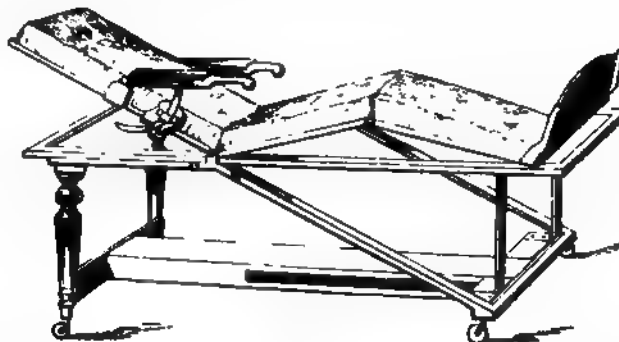
Oval carved frame for a mirror, and sundry specimens of carving and furniture.

198 **DONNE, GEORGE JOHN**, 155 *Leadenhall Street*—Manufacturer.

Looking-glass; plate-glass, manufactured at Shields.

application of three Archimedean or endless screws, one of which, by turning the top handle at the end of the couch, raises the back to any desired elevation; and by

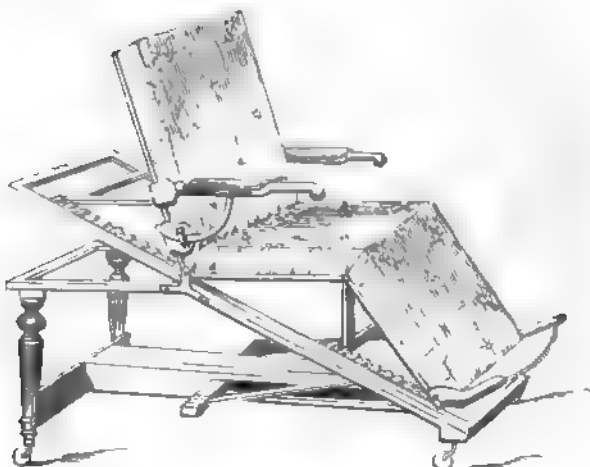
turning the handle at the side, the knee-joint is raised, and the couch then assumes the position shown in the annexed cut.



Minter's Invalid Couch. Reclining position.

Again, by turning the bottom handle at the head of the couch, the whole of the top frame is acted upon, and the couch assumes the position shown in the following cut. These positions can be varied, more or less, as best

suits the invalid. The various inclinations during the transit from one position to another, can be made available, as the couch remains fixed at all angles, except when turning the handles attached to the screws.



Minter's Invalid Couch. Sitting position.

- 211A WHITCOMBE, A., *Cheltenham*—Designer and Manufacturer.

Portrait frames, carved and gilt.
Toilet-glass, in carved and gilt frame.

- 212 BELL, DAWSON, 10 *Ann Street, Belfast, Ireland*—Manufacturer.

Carved devotional chair, of bog oak, a wood found in the Irish peat-bogs, at a considerable depth, being the remains of the ancient forests; its dark colour is acquired by the action of the peat. In the carving are introduced the figures of Hope and Plenty, with a chasing of shamrocks, scrolls of oak leaves, and the harp of Brien Boroihme, an ancient king of Ireland; the strings are of native silver wire. The upper arm of the harp is ornamented with two crystals, termed "Irish diamonds." Over the harp is a shield, with the arms of the O'Briens; and surmounting all, the ancient Irish crown. An Irish wolf-dog, couchant (species now extinct), is at the side of the harp. The device in needlework, on the panel, was designed by the exhibitor, and executed in Belfast, being a group of national emblems; a minstrel and his harp, an oak, wolf-dog, round tower, castle in ruins, brazen vase, antique trumpets, shamrocks, and oak leaves. The covering of the cushion is in keeping with the panel, representing the mether or drinking-cup, charter horn,

shields, swords, ancient royal crown, war pennon, bow quiver and arrows, bronze reaping-hooks, all copied from drawings of existing relics.

- 213 ASPINWALL & SON, 70 *Grosvenor Street—Inventors, Manufacturers, and Proprietors.*

Registered card-table. Dining-room chair, with apparatus, by which various inclinations can be obtained.

- 214 CHAPLIN, THOMAS, *Rose Tree Street, Kildenny, Ireland*—Manufacturer.

Ornamented circular oak table, on pillar, tripod, and claw, without clamps, retches, and thumb-screws; with top veneered in figures; outside border inlaid with oak leaves and acorns; and solid moulding round the top.

- 215 CURRAN, J., & SONS, *Lisburn, Co. Antrim, Ireland*—Designers, Carvers, and Manufacturers.

Sculptured and perforated arm-chair, from the antique; with fruit and foliage from nature, but grotesque figures; of Irish black bog-oak, found in Moyntagh's Moss, Ballinderry, Antrim, Ireland, made by three poor working men, expressly for the Great Exhibition. It occupied the workmen during eight months, at unlimited hours; the

AREAS I. J. 19 TO 25; L. TO O. 21 TO 24.

ing of the seat and back are of crimson-silk velvet, factured by E. Jones, 3 St. Andrew-street, Dublin. ece of the wood in its seasoned, but unfinished state. al pencil designs by the makers, who are self-taught.

VERRINDER, J., *Lincoln*—Inventor.
A bedstead or couch.

BACON, WILLIAM, 65 *Wells Street, Oxford Street*—
Inventor and Manufacturer.
ding spring mattresses.

BUDGE, JOHN, *Wells, Somerset*—Manufacturer.
tel, in English oak, of a chair formerly the property bot Whityng; now in the possession of the Bishop h and Wells.
nature model, in ivory, of the same chair, on a scale ch to a foot.

BRITTAN, W., *Butleigh, near Glastonbury*—Producer.
ved chair and rustic flower basket.

HARRISON'S WOOD CARVING COMPANY, *Ranelagh Road, Thames Bank, Pindar*—Producer.
inet, in carved oak. This cabinet is represented in eompanying engraving. It is formed of British , coloured by being charred by heat.



Harrison's Carved Oak Cabinet.

EVANS, FRANCIS, 18 *Albert Street, Deptford*—
Inventor.
sic stand, constructed of one piece of wood, which s opened out with legs, desk, slide, &c.
tel of a chair constructed on the same principle.

225 CAWLEY, JOSEPH, 1 *Michael's Place, Brompton*—
Designer and Manufacturer.

A three-post bedstead in fine Spanish mahogany, the rod forms a part of the cornice.

228 NUNN, JOHN, 7 *Upper Vernon Street, Lloyd Square*—Designer.

Picture frame to answer the purpose of a portfolio, and to change the prints or drawings at pleasure, which are fixed on the panel with vulcanized India-rubber straps.

229 PAGE, H. M., *Cocentry Street*—Manufacturer.

Novel adaptation of a dressing-glass and dressing-case. Registered.

230 BILLAMORE, Mrs.—Inventor.

A newly-invented chair.

231 GARDNER, JOHN HENRY, 19 *Poppin's Court, Fleet Street*—Designer and Manufacturer.

Satin-wood toilet glass, in carved frame, supported by ornamented columns, on base containing jewel drawers, &c., suspended by Cope and Austin's patent movements.

A mahogany table containing toilet glass, &c. On opening the lid the glass is exposed, which, on being raised, falls into any position required. Underneath are contained razors, brushes, &c.

232 WELLS, EDWARD, 310 *Regent Street*—Producer.

Landscape transparent blind, "a scene at Windsor Castle in 1850, the Queen, Prince Albert, and the royal children."

233 SANG, FREDERICK, 58 *Pall Mall*—Designer.

Specimens of interior decorations, or coloured architecture. Interior of the Royal Exchange; vestibules and grand staircase at the Conservative Club, St. James's Street, and of King James's Room at Hatfield House, Hertfordshire. Design for the decorations of a club-room. Interior of a coffee-room at the New Carlton Club, Pall Mall. Interior decorations for a banking hall. Interior of the new assembly hall at Bury. Design for the decoration of an exchange.

234 HOPKINS, HARRY, 13 *Westmoreland St., Marylebone*—Manufacturer.

Table top, painted in imitation of marble. Panel and Stile, painted in imitation of woods, inlaid.

235 COOPER, W. M., *Derby*—Manufacturer.

Pulpit made by the exhibitor for a church at Holbeck, Leeds, the figures cut by John Philip, from a design by Mr. Geo. Gilbert Scott, of London.

236 WETHERELL, F. S., 13 *Shepherd Street, Oxford Street*—Designer and Manufacturer.

Carved oak Gothic cheval firescreen, for a drawing-room, enriched with vine foliage and animals of the chase. The glass panel screens the heat but affords the view of the fire.

237 HAWKINS, SAMUEL, 54 *Bishopsgate Street Without*—Patentee and Manufacturer.

Model set of expanding dining-tables, to show the adaptation of the patentee's patent screw movement, by which one person can open and close any sized dining-table, by this application no fastenings are required for the tops or flaps, or extra legs in the centre of the table, the expander bearing the whole weight, and being equal to 4 tons in strength. This patent screw movement is shown in the cut on next page, fig. 1.

A, a solid iron screw, to work in B.

B, a screw cut on tube, to work in C.

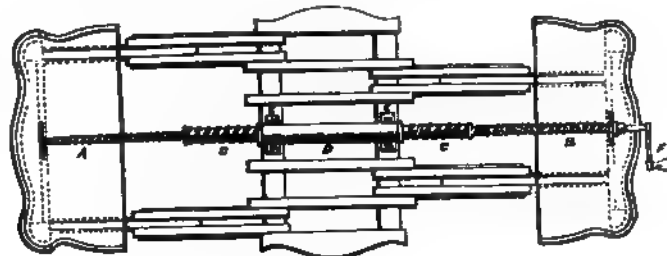
C, a screw cut on tube with nuts inside, to work in D.

D, tube or case with nuts inside, to receive A, B, C.

E, brackets, for D to rest and revolve.

F, crank handle by which the whole is put into motion, extending the dining-tables to any required distance.

Fig. 1.



Hawkins's Patent Screw Movement for Dining-tables.

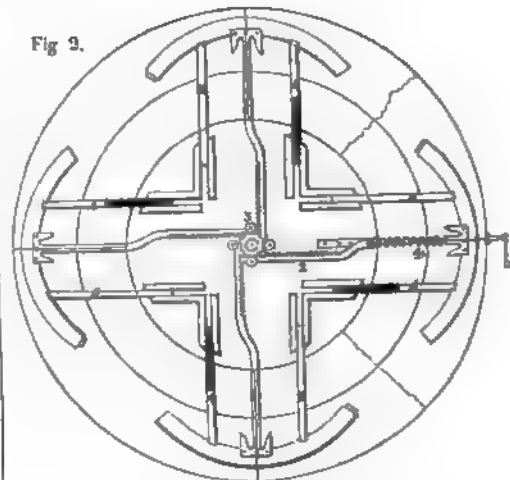
Model set of expanding round tables, to show the adaptation of the exhibitor's patent cog-wheel, with screw movement, for expanding and contracting circular dining-tables. This movement is shown in the adjoining cut, fig. 2.

1. Cog-wheel in centre.
2. Arms with racks.
3. Guide-wheels, to keep arms to their work.
4. Screw, which being put into motion with the
5. Crank handle, the frame extends each way equally. A passes under B to rack-irons, extending table to nearly double its original size. This part is shown separately in fig. 3.

Fig. 3.



Fig. 2.



Hawkins's Patent Cog-wheel Movement for Dining tables.

238 HOWARD, JOHN, & SON, 22 Berners Street, Oxford Street—Manufacturers and Designers.

A walnut-wood cabinet, ornamented with flowers drawn and modelled from specimens at Kew Botanic Gardens, by the designer, assisted by Meedames Peachey and Strickland, wax floral artists; designed chiefly as an ornamental adjunct to the boudoir or drawing-room, to contain articles of vertu. The slab is of Magnus's patent mosaic, designed by Howard.

239 HANCOCK, NICH., 6 Bartlett Court, Bow Street—Inventor.

Invalid and drawing-room easy reclining chair, to obviate the necessity of using pillows to support an invalid when placed up in bed; it forms a stool, and also a handsome drawing-room easy chair for common use.

240 BOARD, CHARLES, 28 Swindon Street, Gray's Inn Road—Manufacturer.

Spring pillows made of spiral steel springs and whalebone. Model of a quilt made of an article imported from Russia, and covered in crimson silk. Various samples of white goose feathers.

241 ISAACS & CAMPBELL, 21 St. James Street—Inventors and Manufacturers.

Patent portable barrack, college, camp, and cabin furniture, containing a chest of drawers, a wash-hand stand, dressing-table and glass, iron bedstead, with curtains and bedding, reclining chair, towel-horse, writing and dressing-case, and having sufficient room in the drawers to contain a complete military outfit, the cases at same time forming a wardrobe.

242 JACKSON, GEO., 4 Russell Meads, Fitzroy Square—Manufacturer.

Walnut-tree carved cabriole settees, representing three backs of chairs, covered.

246 KENDALL, CHARLES HOLLAND, 24 Mark Lane—Inventor and Improver.

Decanting machine, corking machine, wine-finishing and champagne capsules.

247 EDWARDS, SAMUEL, 13 Cannon Street Road—Manufacturer.

Four-foot octagon revolving library table, contains 14,000 pieces of English and foreign woods. This occupied ten months in the process of manufacture.

251 LATHAM & DIGHTON, 1 Bateman's Buildings, 1 Square—Designers and Manufacturers.

Metal gilt vase and cover for flowers, ornamented amethysts, garnets, turquoise, &c.

252 MOXON, CHARLES, 33 High Street, Marylebone—Decorator.

Decorations for a drawing room, consisting of tions of inlaid marbles, panels, &c. Chimney pie glass frame, by John Thomas. Panels of imitation laid woods, showing the mode of application for decorative purposes. Imitations of marbles, for d tions.

253 MARCHANT, WILLIAM—Manufacturer.

Lady's work-table, consisting of a chess-table drawers, &c.

254 MARTIN, WILLIAM, 6 Rutland Street, Hampstead Road—Inventor.

Registered ornamental flower-pot cases.

255 GREVILLE, A. S., Harrington Cottage, Brompton Park Lane, Brompton—Manufacturer.

Oval table, hexagonal stools, vases, round star basket; ornamented with flowers, made of mixed holly, oak, cedar, elm, &c.

ILES, HENRY, 16 Seabright Place, Hackney Road—
 Inventor and Manufacturer.
 Wood lloo-table, inlaid on top and bottom block,
 ag a secret cash-box.

ORTH, D., 23 Great Windmill Street, Haymarket—
 Designer and Manufacturer.
 Wood oval tea caddy, with flowers carved in satin-
 ie interior fitted with small oval caddies in rose-
 th carved flowers. Two satin-wood sugar-basins.
 ase ebony inkstand, the interior fitted up with
 ide, and tray with ink bottles.

UTCHEY, JAMES, 5 West Street, Soho—Designer
 and Manufacturer.
 f candelabra, in ebony and ivory, supported on
 polygon, and spirally turned.
 -stand in English yew-tree.

ORTH, CHARLES, 1 Queen's Head Court, Great
Windmill Street—Designer and Manufacturer.
 g stand, capable of being placed in any required
 Bed-chair for invalids, in which they may
 : any position.

OKELL, THOMAS DUBSTON, 5 Warren Street,
Camden Town—Manufacturer.
 ne frame, with trellis-work border, and silk
 ing.

ACKSON & GRAHAM, 37 & 38 Oxford Street—
 Manufacturers.
 ard of English oak in the renaissance style, the
 formed by figures representing hunting and
 umber and autumn. This sideboard is repre-
 the accompanying Plate 118.
 bookcases in walnut-tree.
 -room or library chair, of English oak, in the
 ce style.
 and gilt drawing-room chair. Library sofa.
 nd gilt cheval screen.

YNOLDS, JOHN, 57 New Compton Street, Soho—
 Manufacturer.
 able for flowers.

INSON, C., 6 and 7 Greenland Place, Gray's Inn
Road—Inventor and Manufacturer.
 le metal bedstead, which will form also a half
 istead, chair-couch, and ottoman; the ottoman-
 ins every requisite.

OGERS & DEAR, 23 and 24 St. George's Place,
Hyde Park Corner—Manufacturers.
 sence bedstead in walnut-tree, carved, with foot
 -board in relief, stuffed panels, deep-shaped
 cornice, canopy tester, English tapestry hangings,
 and trimmings.
 n coal sarcophagus, answering the purpose of
 an and coal receptacle; constructed of walnut-
 nch polished; the seat is stuffed and lined
 n Utrecht velvet; the interior is furnished
 pper, lined with zinc, in order that the superin-
 coals may be made to supply the place of those
 by a shovel; the top is hung on hinges, and a
 plinth of the sarcophagus lets down in front,
 ceived by a spring fastening. Designed by
 hshaw, Esq.
 rench-shaped mahogany bedstead, to exhibit an
 for making one get up.

HEE, E. T., 451 Oxford Street—Manufacturer.
 ns of paper decorations.

266 HINDLEY, C., & SONS, 134 Oxford Street—
 Proprietors.

Sideboard, manufactured of British red oak in the
 Tudor style, with rich mouldings and carvings, the back
 of silvered plate glass.

Chiffonière, of English walnut-tree, carved, the top
 of fine sienna marble, the back of silvered plate glass.

Davenport writing-table, of Albuera-wood, on pedestal,
 with carved panels and columns. Occasional table, of
 maple, on ornamental standards. Chess-table, of rare
 Chinese woods, inlaid by the natives, on quadrangular
 stand. Portfolio-table, of American birch, carved, with
 folding top to rise and slide. Chess-table, inlaid top
 on walnut-tree, quadrangular stand. Octagon pedestal
 bookcase, of Baltic oak. Lady's writing-table, of English
 walnut-tree. Pedestal Davenport writing-desk, of New
 Zealand Totara wood.

Ornamental table for flowers, of American birch.

Gothic library chair, of British red oak. Carved cipher
 chair, of English sycamore wood. Carved arm chair, of
 American birch. Lounging chair, and easy chair.

Cabinet for coins, of Kyabooka wood, carved and gilded,
 fitted with numerous trays.

Ornamental toilet glass, of English walnut-tree, in the
 Elizabethan style.

267 SIMPSON, GEORGE, 12 Eldon Street, Finsbury—
 Designer and Manufacturer.

Improved ornamental library table, registered pattern.
 The drawers on either side, by simply moving a rod or
 bolt, with springs attached, can be easily fastened or
 unfastened.

270 SIMPSON, WILLIAM BUTLER, 456 West Strand—
 Manufacturer and Designer.

Paper-hanging decorations, executed in distemper
 colours, washable with soap and water. Imitation of
 the decorations of Pompeii, and simple ornamental
 panelling, with pilasters. Others, with the ground
 colours in washable distemper and the ornament in
 encaustic colours: Italian, Arabesque, and Gothic; also,
 gold ornaments on flock ground in panels.

These articles are designed for the decoration of the
 walls, ceilings, and panellings of rooms, in a superior
 style, and at a moderate cost.

Their novelty and great advantage arises from the
 colours, which are used in distemper, being hardened and
 rendered washable by an after process; so that while the
 colours retain all the brightness of distemper colouring,
 they are as permanent as oil colours, and will bear
 constant cleaning with soap and water. This process is
 patented.

271 SCROXTON, J. H., 137 Bishopsgate Street—
 Manufacturer.

Show goods, used by tea dealers and grocers, for deco-
 rating shops. Vases in tin, ornamented and japanned.
 Octagon stands, inlaid with pearl. Bowls and brass beads.
 German silver tea-scoop.

273 SQUIRE, CHARLES, 20 Old Fish Street—Inventor and
 Manufacturer.

Apparatus for baking wood, for the purpose of ve-
 neering, and for boiling and distilling water.

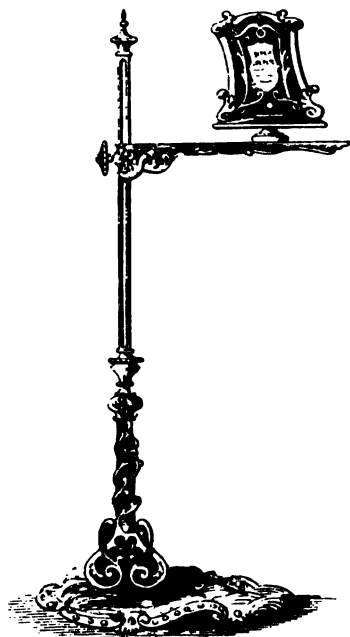
Looking-glass, with ball and socket movement, conve-
 nient for taking to pieces and packing in small compass;
 the movement prevents the quicksilver from being
 damaged.

Composition and wood picture frames, gilt, silvered,
 and coloured.

275 THOMAS, WILLIAM, 29 Berners Street, Orford
Street—Designer and Manufacturer.

Specimen of figure-carving, in oak, with a design for the
 door of a palace of justice.

WARREN, THOMAS, 371 Oxford Street—Inventor.
 A portable reading-stand, carved in rosewood, and enriched with gold and ormolu ornaments, with stuffed foot in crimson Utrecht velvet, for holding a book in position, sitting, standing, or reclining. The following cut represents this stand.



Warren's Patent Reading-Stand.

CREASER, Mrs., 18 Melton Street, Euston Square—Inventor.

Writes writing-table, with drawers, on an entirely new plan.

COOPER, G., Kingston, Surrey—Producer.
 A rustic chair.

MUMMERY, FREDERICK H., 5 Railway Place, Holloway Road—Manufacturer.

A portable bedstead. Press bedstead in a pianoforte style.

WILSON, JACOB & SONS, 18A Wignmore Street, Cavendish Square—Inventors and Manufacturers.

A round oval centre table, with a revolving top; one side inlaid wood, the other of cloth as a card or writing table. Similar table, with a circular bagatelle-board attached.

A square work-table, with a silk bag at each end; the top to be raised and formed into a table for two different uses. Similar table with a chess-board attached. Library table of mahogany, of a new shape and construction.

SCOTT, CUTHBERTSON, & Co., 49 Lower Belgrave Place, Pimlico—Manufacturers.
 Ornamented Gothic decorations of the period of Henry II., for dining rooms, libraries, and halls, &c. Wall decorations for walls of drawing-rooms, &c. Decoration with fleur-de-lis panels.

D'ALMAINE, WILLIAM FREDERICK, 8 Percy Street, Bedford Square—Designer and Manufacturer.
 A decorative panel, in the style of Edward I.

ARTHUR, THOMAS, 3 Sackville Street—Producer.
 A screen painted by hand in oil colours, with subjects of nature, suitable for a drawing-room, boudoir, &c.

Registered damask pattern of paper-hanging.
 Specimens of fine woods and marbles in graining.
 Decoration imitating inlaid marbles; suited for staircase or hall. It may be executed in paper or by hand.

304 ASCROFT, THOMAS, 35 Queen's Road, Chelsea—Designer and Proprietor.

Original design for paper-hangings, being a new combination of damask and chintz work.

305 BARRETT, JOSEPH, 246 Bethnal Green Road—Designer.

Drawings for paper hangings.

307 COOMBER, J., 66 Brand Street, Blandford Square—Producer.

Painted table-top, in imitation of inlaid woods. Slab, in imitation of inlaid marbles.

308 GODDARD, JOHN, 7 Bedford Place, Hampstead Road—Designer.

Design for paper hangings, of British and exotic flowers; air plants of the torrid zone, in natural positions appended to a palm.

[The plants popularly called air-plants are known to botanists under the name of *orchids*. They form a distinct, and in many respects a most peculiar and anomalous natural family. The principal source of their solid tissues is the atmosphere, from which, in common with plants growing in the earth, they absorb carbonic acid, the decomposition of which furnishes their food. They are very commonly found in tropical forests, hanging down their curious roots and fantastic flowers from palms and other trees, and emitting delicious odours.—R. E.]

309 WOOLLAMS, WILLIAM, & Co., 110 High Street, Marylebone—Manufacturers.

Specimens of decorative paper-hanging, in flowers and ornament; and in the Alhambra and arabesque styles.

Screen of various specimens of paper-hangings. Specimens in the early Italian style, and in the mediæval style, designed at the Government School, Somerset House.

Specimens with Indian birds and flowers, in imitation of mother-of-pearl, and in hollyhock and ornament.

The design of one of these specimens is given in the accompanying Plate 38.

310 HINCHLIFF, NATHANIEL, & Co., 123 Wardour Street, Oxford Street—Manufacturer.

Registered paper-hangings. Panel decorations, and an arabesque panel decoration, designed by Mr. John Grace.

312 PRICE, J., Gateshead, Newcastle-upon-Tyne—Manufacturer.

Table, with jasper glass top.

312A TRAPNELL, H., & SON, 2 St. James Barton, Bristol—Designers and Manufacturers.

A console chiffonnière, of fine English walnut-wood. The top is of statuary marble, set in a moulding of ebony and tortoiseshell, with ruby-coloured glass in the end shelves, and the centre shelves and backs of plate glass, intended to give multiplied reflections of the objects placed upon the shelves.

313 NEWBURY, J. & R., 2 and 3 Hemlock Court, Carey Street, Lincoln's Inn Fields—Manufacturers.

Gold, silver, and coloured tissues, alike on both sides, for making artificial flowers, &c. Coloured foil papers for decorative purposes. Gold and silver paper ornaments for placing on "Irish linen bands." Vulcanized, washable, enamel coloured papers. Crimson, blue, and green papers, coloured by machinery (in any length), without seam or join.

**314 NORWOOD, CHAS., De Beauvoir Factory, Rosemary
Branch Bridge, Hoxton—Manufacturers.**

An architectural decoration, composed of printed mouldings, figures, and wainscot papers for public buildings, halls, corridors, &c. The style is Tudor Gothic, with figures.

**315 PURKINS, JOHN, & SON, 29 Old Change—
Designers and Manufacturers.**

Imitation of marbles in water-colours, on paper. Sienna marble, skirting dove marble. Two coloured green marbles, worked to represent four distinct pieces; executed on a square surface, instead of pieces joined together. Skirting porphyry. Devonshire dove marble. Skirting Brocatella marble.

**316 SOPWITH, T. & J., 15 Northumberland Street,
Newcastle-upon-Tyne—Inventors and Manufacturers.**

Monocleid writing cabinet, for collecting and arranging a great number and variety of papers, so as to be readily accessible. The whole of the drawers, closets, and partitions may be opened by one lock.

**317 TURNELL, L., 32 Pinstone Street, Sheffield—Producer.
Ladies' work-table, a specimen of English elm.****318 TOWNSEND, PARKER & TOWNSEND, 132 Goswell
Street—Designers and Manufacturers.**

Paper-hanging decorations consisting of flock, flock and gold papers, flowers, fruit, and arabesque designs divided into panels.

The two principal papers are exhibited as examples of opposite styles of internal decoration; one intended to be light, graceful, and delicate, the other rich, bold, and striking. The former consists of panels on a light ground, having centre pieces formed of groups of fruit and flowers, separated by delicately ornamented pilasters, with bunches of fruit and flowers rising from the base, and pendant from the top, the whole surmounted by a floral frieze on gold ground, and a border below in the same taste. The other decoration consists of a large panel, bearing in the centre a rich arabesque design on a light ground; the foliage being a combination of such plants as would most naturally and gracefully assume the required forms, as acanthus, crown imperial, &c. The pilasters are ornamented with designs in a corresponding style, upon a dark, rich ground, finished with a broad frieze and a border in blue, red and gold. The accompanying plates represent these designs. Plates 66 & 159.

**320 TURNER, HENRY, & CO., Elizabeth Street, Pimlico—
Manufacturers.**

Paper-hangings, entirely block-printed, viz.—

1. A damask in brown flock, on a green flock ground, from a design by M. Charles Javet, of Paris.
2. A panel with flower border, from a design by Mr. William Draper, of Camberwell.
3. A chints and border, in a series of panels, designed by M. Marchand, of Paris.
4. A panel with Elizabethan ornamental border, from a design by Mr. William Draper.
5. Four frames with Grecian moulding, printed in imitation of oak, and containing two panels in shades of green flock on a puce flock ground, and two panels in double crimson flock, in imitation of silk damask. Both damasks from original French designs; the moulding from drawings by H. N. Turner, jun. The accompanying Plate represents one of these paper-hangings.

**321 WILLIAMS, COOPERS, BOYLE, & CO., 85 West
Smithfield—Manufacturers.**

Drawing-room decorations. Damasks for dining-rooms. New mode of combining metal and flock. General patterns of new designs.

**322 WOOLLANS, JOHN, & CO., 69 Marylebone Lane,
Oxford Street—Manufacturers.**

A general assortment of paper-hangings and decorations by block printing:—Damasks. Flower patterns and

decoration borders. Flock and metal, and two flock patterns. Bronze patterns. Panel decoration, consisting of the orange and white datura, from drawings by Kim Palmer, of the School of Design, London.

Specimens of machine printing:—Paper hangings printed by steam cylinder machinery, exhibited for cheapness and quality. From one to eight colours printed at one operation, and at the rate of 200 pieces, or 2,000 yards per hour. Registered designs.

**326 JEFFREY, ALLEN, & CO., Kent and Essex Yard,
Whitechapel—Manufacturers.**

Paper printed by blocks in distemper. Specimens of many-coloured chints wall-paper, and of cylinder-printed wall-papers.

Frieze, executed in imitation of classical subjects, 24 feet in length, without repeat, selected from the best part of the Elgin frieze. Also, a series of panels representing "Deer Stalking;" and some copies from Murillo, printed in blocks.

A panel composed of a "green flock filling," designed by one of the pupils of the Spitalfields School of Design, from the common buttercup; intended to show that the simple forms of nature abound in elegance, and only require to be studied with care, and copied with skill.

**329 DAVIS, CHARLES, 26 Blackfriars Road—Designer
and Painter.**

Design of a panel for the decoration of a ceiling, in imitation of inlaid woods.

**336 JONES, THOMAS, & CO., 214 Piccadilly—
Inventors and Manufacturers.**

New method of decoration for the side of a room, consisting of a flock paper, relieved by panelling in high relief in gold, bounded with a border, and surmounted by an enriched cornice in white and gold. Coloured decorations for ceilings, and other specimens.

**337 M'LACHLAN, JAS., 35 St. James's Street, Piccadilly—
Designer, Manufacturer, and Proprietor.**

Specimens of arabesque painting on glass, for the decoration of rooms (being pilasters); also imitations of inlaid marbles on glass. Specimens of flocking on painted walls, and of arabesque painting for the decoration of rooms.

**340 SEWELL, CHARLES & FREDERICK, 13 Charles Street,
Westbourne Terrace—Designers and Manufacturers.**

Elizabethan ornamental screen, containing panels in imitation of various marbles and woods, adapted for interior and exterior embellishments.

**341 SMITH, CHARLES, 43 Upper Baker Street—
Decorator.**

Imitations of marbles, in paint, on slate and wood, for interior or exterior decoration. Grecian ornament, in paint. Arabesque decoration, in paint, for drawing-rooms, boudoirs, &c.

**342 SOUTHALL, CHARLES, & CO., 157 Kingsland Road—
Manufacturers.**

Half top of table in imitation marble, inlaid. Slab, in imitation rouge royal marble. Imitation marble and woods, worked on paper, for decorating staircases, halls, &c.

**343 STRUGNELL, HENRY, 25 Kirby Street, Hatton Garden
—Designer and Manufacturer.**

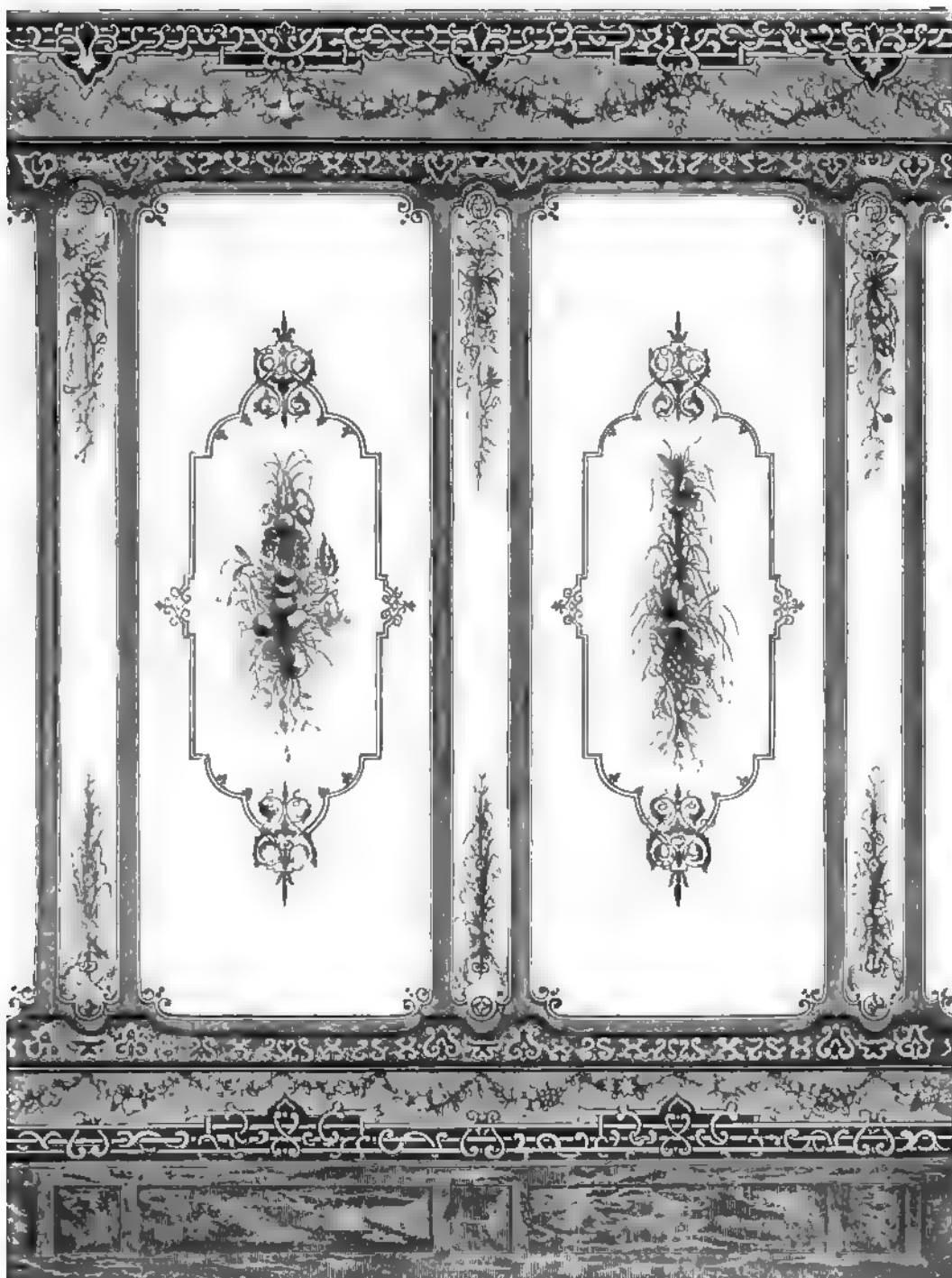
Ladies' writing-desk, in ebony and buhl-inlaid, with newly-introduced fancy edges. The internal arrangement designed by Mr. Wathen, of Glasgow.

**344 HATBALL, ARTHUR, Government School of Design,
Sheffield—Designer.**

Cabinet, carved in walnut.

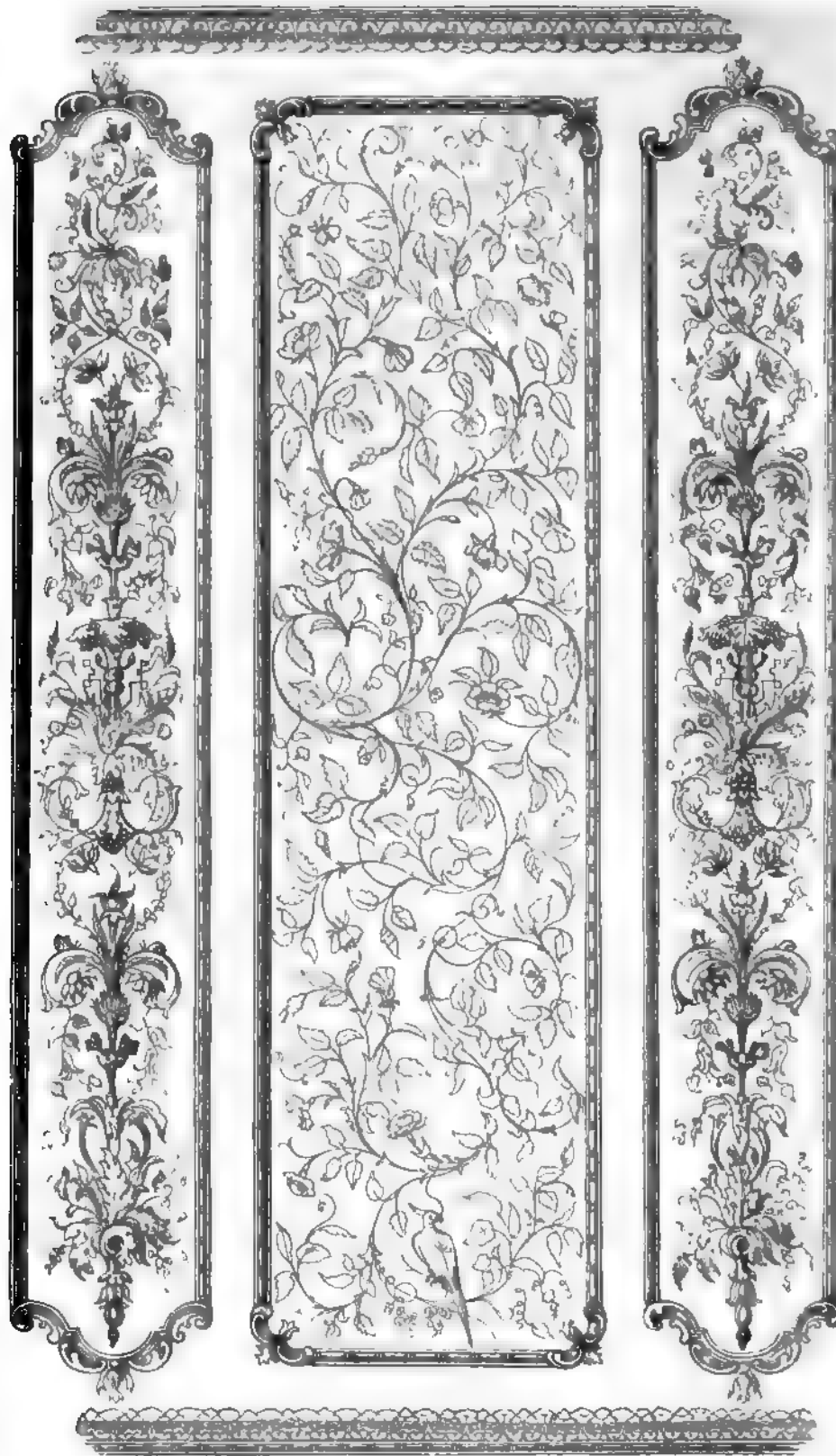
**345 HOYLES, HENRY, Government School of Design,
Sheffield—Designer, Modeller, and Carver.**

Sideboard, carved in walnut.



159.

SPECIMEN OF BLOCK-PRINTED PAPER HANGINGS MESSRS. TOWNSEND AND PARRELL



MEDIÆVAL COURT.

529 PUOIN, Messrs.

Various articles for the ornament and decoration of churches, &c.

530 CRACE, JOHN GREGORY, 14 Wigmore Street—
Manufacturer.

Furniture and decoration in the mediæval style.

Side board, in carved oak.

Oak cabinet bookcase, in carved oak, with ornamental brass work.

Octagon and writing table, in carved walnut wood, with inlaid top.

Carved oak bench. Tables and lecterns. Carved prie-dieu, with tryptic over. Oak screen with needlework, by Miss Biffeld.

A carved pianoforte, and a carved gilt pianoforte, made by Lambert and Co., 1 Werrington Street, St. Pancras.

Tapestry damask in silk and wool. Silk brocatelles. Woollen stuffs for hangings. Chintzes. Axminster, Brussels, and velvet pile carpets.

Decorations in the mediæval style.

531 MISTON, H. & Co., Stoke-upon-Trent, Staffordshire
Manufacturers.

Ornamental tiles, porcelain, and painted ware.

532 HARDMAN, JOHN, & Co., Great Charles St., Birmingham
Manufacturers.

Brass lecterns, with book-desks, and figures of various kinds.

Altar, with brass pillars, and other appurtenances, in the old French style.

Candlesticks, with various ornamental figures, in antique style.

Brass table, with inlaid marble top. Hanging-beam for lamps.

Plated metal candlesticks, beaten and engraved. An iron candlestick. Brass ornament for altar.

Corona, intended for a large parish church. Brass chandeliers, of new designs, for churches.

Small brass corona. Brass stands, with branches for lights. Brass book stands and candlesticks, with various ornamental figures.

Monumental brasses, with various figures and ornaments.

"Beaten work" is produced by being raised by means of a hammer, on variously formed stakes or anvils; the figures, or ornaments, are produced by being punched up the mallet. The interior of a vessel or ornament is filled with some substance, say pitch, and, by means of small tools, the workman completes the design; these works are always produced out of thin plates of metal; the art of the engraver then follows, and, in the higher class of objects, when not formed of a precious metal, they are "parcel" gilt, that is to say, certain portions of the surface are gilt, which are confined within given spaces, by the fine engraving. The enameller occasionally lends his aid to produce rich colouring. Enamel is produced by heat, it is, in truth, a coloured glass, which is ground down in some volatile substance, and applied in a fluid state with a brush, and which the heat of a muffle fuses, and renders a transparent substance, which is occasionally polished. The enamellers of Limoges were celebrated for their excellence in this department of fine art manufacture.

By "perced work," is understood the perforated metal work, which adorned many of the hinges and other articles; this was originally done by means of a steel saw, it afforded abundant room for the exercise of taste and originality.

In the brass working a difference will be detected in the degree or appearance of finish; this arises from every

portion of the work being polished, by means of which the natural colour of the brass is shown. In modern brass-foundry acid-finish is the rule, the polish-finish the exception. Every portion of the work, in the latter case, is filed carefully over, and finished by brushing, with revolving brushes, with rotten-stone and oil, a chamouis skin and the same material clears it up, and the whole is protected from tarnish by a light lacquer.

Monumental brasses are formed out of rolled metal, and the designs and inscriptions incised by means of the graver's tools; the hollows, or incisions, are filled up with a hard wax; in some of the older specimens a kind of enamel was used. After the brass work is completed the same is inlaid in black marble, or Purbeck stone, according to taste.—W. C. A.]

Brass chandeliers, with branches, in the style of the 15th century. Coronas, brass hall-lanterns, and candle-labrs. Brass candlesticks, for tables. Brass beaten alms dishes. Looking-glass, mounted with brass.

Painted glass windows for halls, chapels, and churches, containing various figures and ornaments. Various specimens of tracery. The glass manufactured by Messrs. Lloyd and Summerfield, Birmingham; and Messrs. Hartley and Co., Sunderland.

[Considerable advance has been made in the art of glass staining, or painting. Transparency and brilliancy of colour are now obtained by several of the English glass painters. The colours employed are principally metallic oxides. The process of painting a glass window may be thus described:—a cartoon is made of the subject intended, which is, in the majority of instances, transferred to the hands of the workmen who are to apply the colour; when this is done, the glass, with the colour applied, is subjected to the heat of a muffle, and is fused. "Pot metal" is occasionally used, that is, metal which has been made in a furnace, with the colour incorporated with the glass when in a state of fusion: "flashed glass" is also used, and is made by the covering a ball of glass with coloured glass, by blowing it into the form of a globe, and then finally flashing it, or throwing it into a horizontal disc, from which pieces are cut—the details are then added, and the glass is put into the hands of the glazier, who leads it together, and forms the window.—W. C. A.]

Embroidered robes of white and gold brocaded silk, red velvet, red and gold brocaded silk, white silk brocade with gold thread, with hoods, capes, girdles, &c. Various specimens of embroidery, chain stitchings, silks, laces, &c. Designed by A. W. Pugin, Esq.

533 MYERS, GEORGE, Osborne Wharf, Lambeth—
Manufacturer.

Font and cover in the style of the fifteenth century, the four panels contain "The Fall of Man," "Baptism of our Lord," "St. John preaching in the Wilderness," and "The Crucifixion." Tomb to be erected in St. Chad's, Birmingham, for the late Dr. Walsh. Reredos and altar. Stone tabernacle. Road for the screen of a chapel. Compartment of the screen for a church. Oak bench for a parochial church. St. John the Baptist, in oak, on corbel. Stone altar for the chancel of a parish church. Stone fire place. Compartment of staircase. Oak cabinet in the style of the fifteenth century.

Copper casement, designed for a lunatic asylum.

534 BIFFELD, CAROLINE, 6 Cornhill Place, Islington—
Designer and Proprietor.

Screen. St. George and the Dragon, with the arms of the United Kingdom encircled by the national emblem; also, containing the arms of the Queen, Prince Albert, Prince of Wales, the Duke of Wellington, and Sir Robert Peel, in an ornamented oak frame.

535 DU CANE, A., *Witham*—Designer.
Casket to contain a lock of hair.

536 TUCKER, F., & Co., *Kensington*—Manufacturers.
Wax candles for church and domestic purposes; made by hand and not in a mould, twisted, triple and painted; exhibited for novelty.

DECORATIVE CEILINGS.—SOUTH OF NAVE.

Bay M.

- 21 TROLLOPE & SON, 15 *Parliament Street*.
22 JACKSON & SONS, 49 & 50 *Rathbone Place, Oxford Street*.
23 JACKSON & GRAHAM, 37 & 38 *Oxford Street*.
24 CALLI & COTTI.

UNDER SOUTH GALLERY.

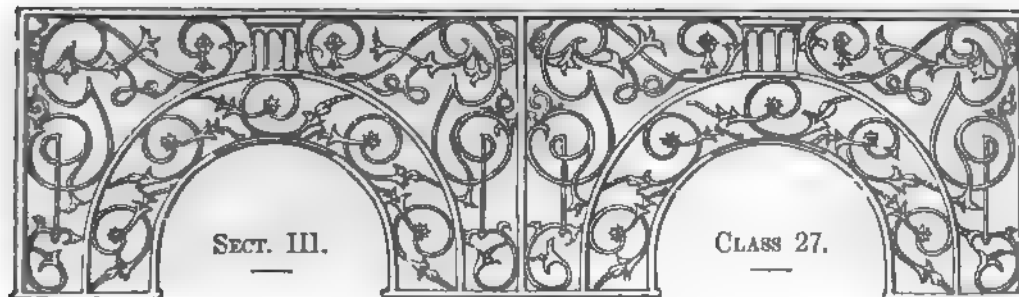
Bay P.

- 15 JONES & Co. (late ROBSON & JONES).
1 LITHGOW & PURDIE.

NORTH OF NAVE.

Bay I.

- 19 JACKSON & SONS, *Rathbone Place*.
20 A. HERVIEU, 10 *Portugal Street, Grosvenor Square*.
21 HENRY CROUGHTON, 100 *Upper Street, Islington*.
22 RICHARD THOMAS, *Circus Road East, St. John's Wood*.
23 }
24 } SCHOOL OF DESIGN, *Somerset House*.
25 C. F. BIELEFIELD, 15 *Wellington Street North, Strand*.



MANUFACTURES IN MINERAL SUBSTANCES, FOR BUILDING OR DECORATIONS.

INTRODUCTION.

THE first of the thirty Classes of the Exhibition has a close relationship with the present Class. The first Class, comprising the raw material, and this its application to use and conversion into definite form, their connection becomes more evident than between other of the Classes of raw materials and manufactures. Thus it may be said that Class 4, including vegetable and animal substances used in manufactures, was only remotely connected with several other Classes, such as cotton, silk, flax, woollen, leather, &c. The same cannot be said with reference to the Class just named—its connection with mineral manufactures is immediate and obvious. In some respects, the present Class deserves to be noticed as presenting a contrast to several of the preceding Classes of manufactures. In many of the preceding Classes, the preponderating influence in the manufacture has been generally of a mechanical kind, the material itself undergoing little amount of physical change. To this the exceptions of glass and ceramic manufactures must, however, be made. In the present Class, although largely consisting of specimens of raw material operated on exclusively by mechanical force, divisions are recognised which comprise processes in which the agency of chemical laws, and of those of heat, is necessary to the success of the manufacture. Of this kind are the cements, artificial stones, plasters, compositions, &c., forming a most important Class of substances in themselves, and extremely well represented in the Exhibition. In the manufactures in stones, slates, &c., the raw material is presented to notice precisely in its natural state as regards its physical character, the form and polish having been communicated mechanically; but, in the substances just mentioned, mechanical force is only subsidiary to that powerful display of chemical affinity which, on the mere application of water, binds together the particles of an incoherent powder into a solid and stone-like mass. To this, in the process of hardening, form is given either by moulds, or by appropriate tools in the hands of the workman.

The following Sub-Classes are recognised:—A. Manufactures in common Stones, as for building, and for decorative purposes; B. Manufactures in Slate, for construction or for decoration; C. Manufactures in Cement and artificial Stones; D. Manufactures in Marbles, Granites, Porphyries, Alabaster, Spar, &c., for useful and ornamental purposes; E. Inlaid work in Stone, Marble, and other mineral substances; F. Ornamental work in Plaster, Composition, Scagliola, imitation Marble, &c.; G. Combinations of Iron and other metals, with Glass and other substances, for various useful purposes.

In the Building, the objects belonging to this Class are placed generally in Areas G. H. 14 to 17, and I. J. 16 to 17. These will be found on the North side of the Western Main Avenue, midway between the Transept and Western Entrance. But in the Avenue itself several large objects are placed which belong to this Class. Among these are the specimens of stone-carving, the fountains, madrepor columns, &c. Outside the Western Entrance, also, a number of articles are exhibited which are included here, such as the specimens of cement, of pipes in earthenware, of ornamental bricks, &c.

The geological character of a locality in this instance will be found, as might be reasonably expected, to determine the peculiar contributions forwarded from thence to the Exhibition. Thus, from Derbyshire, Devonshire, Cornwall, &c., as might be anticipated, are sent specimens of marbles, granites, porphyries, alabaster, spars, &c.; for, in the districts represented, that natural mineral wealth exists in great abundance, examples of which are shown. The same remark applies to the slates sent from Wales, &c. The Metropolis, in which building operations are carried on to an extent equalled by no other capital in the world, might be naturally supposed to be the largest exhibitor of cements and artificial stones, and such is accordingly the fact.

Some very large specimens of slates, applied to purposes of domestic utility, as for cisterns, &c., are exhibited outside the Building. The cohesive power of cements is shown in a variety of ways, and in several combinations, as with pebbles, hollow bricks, &c. The method adopted to illustrate the strength of the cement is to unite two surfaces with it, and by iron clamps let into the stones above, and that below, to apply a force calculated to separate the joined portions. By using pigs of cast-iron, slung by chains to the lower clamps, and by adding gradually to their number, the precise point at which the weight overcomes the cohesive attraction of the cement may be simply ascertained, the area of the surface united always, of course, forming an important element in the calculation. Other circumstances being similar, that cement is considered the most powerful which requires the heaviest weight to disunite the surfaces. In order, however, to gain accurate knowledge of this fact, these experiments should be conducted with care and precision, otherwise the results may be wholly deceptive. These cements may be, and are, in fact, practically included indifferently either in Class 1 or Class 27. It is principally in their application not so much as a cement as for the

formation of a plastic material for architectural or ornamental purposes that they have been regarded in the arrangement of this Class—Class 1, containing a number of exhibitors of these substances. For the latter purpose, however, their power of cohesion, accompanied with their adaptation to manipulating processes, form their most valuable properties.

A variety of articles for use and ornament, formed of cements of different descriptions, are exhibited. The application of these substances to wall-decoration is illustrated by some beautiful specimens, so closely imitative of marble as to be with difficulty distinguished from that material. The applications of terra-cotta, also, are increasing, and various objects formed of this material are shown. Among others, the model of a church, formed of terra-cotta, may be considered as an interesting illustration of the uses of this substance. The model represents a real structure, which is entirely built of terra-cotta, as a substitute for bricks, &c.

Machinery has been applied recently with much success to carving objects in wood and also in stone, and the results are exhibited in some fine specimens. The Derbyshire marbles, as worked by mechanical power, are shown. The serpentine of Cornwall, naturally an extremely beautiful and ornamental stone of a rich body colour, and relieved with brilliant veins of white, have been formed into pedestals, vases, tables, and other articles which are exhibited in this Class. Cannel coal has often been applied to ornamental uses for which, in consequence of its not soiling the hands, and its capability of receiving great brilliancy of polish, it forms a very appropriate material. A block of parrot, or cannel coal, is exhibited in this Class by H. R. H. Prince Albert, together with a garden seat made of this substance, which has been, in this instance, derived from West Wemyss colliery, in Fifeshire.

The sections of cottages, built with hollow brickwork, glazed and unglazed, will receive much attention. The conditions proposed to be satisfied by this method of building are those of dryness, warmth, durability, security from fire, deadening of sound, and economy of construction. The model cottages exhibited by H. R. H. Prince Albert, near the South-eastern corner of the Exhibition Building, Outside, have been constructed with these bricks, and embody several other valuable and ingenious features in their arrangements.—R. E.

1 KERSHAW, THOMAS, 35 John Street, Fitzroy Square—
Painter.

Imitation of foreign and English marbles and woods, for house decorations; made of wood and slate.

3 BRENDON, WILLIAM STERT, Yeolm Bridge, near
Lamoucton—Proprietor.

Chimney-piece, with portion of pavement and skirting; suitable for an entrance hall, designed by Walter Damant, architect, of Plymouth, and executed by James Bovey, statuary, in Yeolm Bridge slate and polyphant freestone.

4 BOVEY, J., Plymouth, Devon—Manufacturer.

A chimney-piece, suitable for a hall or library; designed by Oswald Cornish Arthur, architect; executed in black marble, and inlaid with variously coloured marbles, found in the neighbourhood of Plymouth.

A font, in the perpendicular style, designed by Walter Damant, architect; executed in limestone marble. The step is of Dartmoor granite, inlaid with specimens of Plymouth marble.

The marble contains abundance of fossil remains, and is capable of receiving a fine polish by ordinary hand labour.

5 FREWER, JAMES, Woodbridge Road, Ipswich—
Designer and Manufacturer.

A Caen stone carved chimney-piece.

6 CHAMPERNOWNE, HENRY, Dartington House, Totnes—
Proprietor.

Circular table of bright chocolate-coloured marble. Various specimens of the marbles, showing their adaptation to decorative purposes.

[The marbles of Devonshire are often coralline, but generally very crystalline and much altered, the fossil remains being more or less obliterated. They often exhibit veins, and are varied and rich in colour. The chief objection to them in working, arises from the frequent irregularity of texture they present, and their brittleness. Where more uniform, they may be manufactured for various ornamental purposes.—D. T. A.]

7 MAYO & Co., 17 Silver Street, Wood Street, Cheapside—
Inventor.

Patent syphon vases, for containing aerated or gaseous mineral waters. They afford the means of withdrawing at pleasure such quantities as may be desired, whilst that which remains for subsequent use retains its purity and

effervescence. The vases exhibited are specimens of the combination of metal with pottery. The process of manufacture is the invention of the exhibitor.

8 WILLOCK, E. P., 10 Exchange Arcade, Manchester—
Producer.

Specimens of Ladyshore terra cotta.

9 HUMBLE, WILLIAM, 35 University Street, Bedford
Square—Designer and Manufacturer.

Marble octagon table top, supported on carved wood column and base; the top contains 700 pieces, and 30 different qualities of rare and beautiful marbles, 10 English and 20 foreign, inlaid in various forms.

11 WILSON, J., Stratford, Essex—Manufacturer.
Chess-table, painted in imitation of marble.

12 HARTLEY, THOMAS HENRY, Westminster Marble
Works, Earl Street, Holycell Street, Millbank—Proprietor.

Gothic stone mural monument of new design, with octagonal piers, carved ornaments, and red granite polished panel for inscription. Exhibited for workmanship.

13 EKINS, GEORGE, Ware, Herts—Manufacturer.

Slate coffin, with copper screws; exhibited as perfectly air-tight.

14 WILSON, S., Grimley, Notts—Producer.
Slab painted in imitation of marble.

17 THE LONDON MARBLE AND STONE WORKING
COMPANY, Esmer Street, near Millbank, Westminster
—Importers, Designers, and Manufacturers.

Grecian column chimney piece of white Carrara marble. Hexagon and octagon Gothic fonts, in the perpendicular style, of white Carrara marble.

Model of a bracketed staircase, worked in Irish black marble, for the Duke of Hamilton. This work comprised forty-one steps and four landings, of the following dimensions, viz., one, 10 feet by 7 feet; two, 7 feet square; and the top 38 feet long by 9 feet wide, in 5 pieces; also, 125 square balusters, 2 feet 6 high, with hand-rails in one length of 16 feet; worked and polished by the Company's machinery; the invention and patent of James Tullock, Esq., F.R.S.

Table and slab of coloured marble.

MIRROR MARBLE COMPANY, 16 Castle Street, Southwark Bridge Road—Licensees under Patent and Manufacturers.

imens of a new patent mantelpiece, made entirely and glass. The surface of the iron is japanned, ished in a peculiar manner, or it may remain with amon Berlin finish, a specimen of which is also Thick plate glass panels are introduced, which narbled or painted from behind, give the mantel- ne appearance of fine marble. A mirror is added an iron frame, with a border in blue and gold.

OATES, E. J., 13 Bread Street, Watling Street—Proprietor.

ney-pieces, made exclusively of iron and glass. ed.

VAUGHAN, JOHN, Bath—Proprietor.
and pedestal, showing the quality of Bath stone.

BLACKBURN, BEWICKE, Island of Valentia, Kerry, Ireland—Manufacturer.

imens of slate slabs, from the island of Valentia, and of slate:—

bars, similar in form to the wooden ones used roof of the Exhibition building.

ridge carved in slate by machinery, designed by in Woodward, Esq., architect.

or garden seat, carved in slate.

exhibiting the surface of the slate polished.

is said to expand and contract like glass, to be urable than wood, and to require no paint.

Valentia slate quarry is worked in the form of a mel 100 feet high, and 150 feet wide at the base, into the side of the mountain on a level. Cranes

the top of the tunnel. The slate is not blasted, ed by wedges in blocks of about a foot thick; and

so tough to split, is sawn into slabs of any desired ss.

TTs, EDWARD LADD, Aylesford, near Maidstone—Proprietor.

.-cotta vase.

OLULTON, HENRY & Co., Lambeth—Manufacturers.
d stoneware drain and water-pipes.

Lambeth stoneware is a perfect kind of pottery, hing very nearly to a true porcelain. It is comf clay and flint, and exposed to such a degree of is sufficient to produce a partial vitrification. This glazed by throwing salt into the furnace at a cerge of the process, which is diffused by the intense er every part of the surface, and the soda com- with the silica of the body forms a perfect glass. .]

mens of architectural ornaments in terra cotta; , garden pots, &c.

's cases for the growth and cultivation of ferns, in tta.

I's cases are made nearly air-tight, but not entirely rich plants of the fern family and habits are pro- from the injurious influences of a London atmo- owing to the very gradual supply of air which these eceive, and the process of filtration to which it is d. In these cases, ferns grow very healthfully in t crowded city.—R. H.]

EVENS & SONS, 186 Drury Lane—Manufacturers.
n's cement for plastering internal walls, ceilings, s, and floors; also for plain and coloured mould- stings, and decorations. (On South Wall, S. 21.)

ORE, ALEXANDER, 19 Arthur Street, Belfast—Manufacturer.

—the leaf painted in imitation of marble and spar, The pedestal in imitation of statuary marble,

painted by a new process. The polish was produced by manual labour alone, without the aid of either oil or varnish.

26 PAGE, H. C., 28 Commercial Road South, Pimlico—Manufacturer,

Marble prepared to resist the effects of grease and dirt.

27 KEENE, RICHARD WYNN, 124 Vauxhall Walk, Lambeth—Inventor and Manufacturer.

Samples of mosaic pavement, in terra cotta and other vitrified substances. In this process the tesserae forming the pattern are cemented by vitrification to the base (tile or slab), which cannot be displaced or disturbed by wear or the action of the foot, and each pattern is produced from a die, being struck from a press at the rate of two per minute. The usual process of forming each pattern with separate pieces or tesserae is thus superseded. This mosaic may be manufactured from any plastic material, i. e., terra cotta, Parian china, porcelain or pottery-ware, brick-earth, cements, &c., or from glass in the molten state, direct from the furnace.

[The method of preparing tesserae for mosaic work in clay and other material was invented by Mr. Prosser, of Birmingham, in 1840, and the further process of manu- facturing such tesserae into a solid mass by cementing them together at the back, or in any other way, may be modified according to circumstances.—D. T. A.]

First samples of "Parian" (vitrified), applied to archi- tectural purposes, &c. by the exhibitor.

Ionic capital, designed by Charles Barry, Esq., for the Reform Club House, Pall Mall. Executed in Parian by Messrs. John Rose & Co., Coalport, Shropshire.

28 ILES, CHARLES, Bordesley Works, Birmingham—Inventor and Manufacturer.

Pedestals and slabs, being specimens of patent imitation marble for internal decoration, &c. The mode of pro- duction is new.

The method employed is applicable to all kinds of marble. Fibrous materials are used for producing the marbled effect; they have not previously been employed for this purpose. It is stated that this material can be produced very cheap—in some instances as economically as common plaster.

[The introduction of a cheap mode of giving permanent patterns and colours to the more durable kinds of plaster, effected in the objects here exhibited, is well worthy of notice. The fibrous material is so completely and yet so simply mixed up as to justify the claim to special notice.—D. T. A.]

30 VOKINS, CHARLES, Pimlico Wharf, Wilton Road—Designer.

Chess board and men, made from coal and gypsum.

[The coal used for purposes of decoration is generally of the kind called cannel, which much resembles jet, and is highly bituminous but clean. Such coal is found both in the Newcastle and Lancashire coal-fields in abundance, but also less abundantly in others. The objects made from it are generally very brittle.—D. T. A.]

32 READ, W., 28 Dorset Street, Portman Square—Designer and Executor.

Imitations of various kinds of marbles in paint, on slabs—Brocatella marble, black and gold, rouge royale, Verd de mere, Sienna marble, verdantique, jasper, ber- dilla, griotte, and a group of inlaid, various specimens.

33 STEWART, WILLIAM, Rhodescell Road, Limehouse—Proprietor.

Ancient slab of Agra marble, inlaid with agate, corne- lian, and other stones. From the palace of Akbar Khan, Cabool.

- 35 BRADLEY, JOHN, *Fire Street, Exeter*—Designer and Manufacturer.

Table painted on slate, in imitation of Devonshire marbles.

- 36 ORSI & ARMANI, 6 *Guilldull Chambers, Basin-hill Street*—Patentees and Manufacturers.

Patent metallic lava pavement and ornamental slabs; also a table in the Moorish style, intended for the President of the French Republic. This material is a new combination of known substances which may be worked into a variety of colours and patterns. Its principle uses are for floorings, for the interior and exterior of buildings, in imitation of the most ancient and modern marbles, and complicated mosaics, either polished or unpolished.

Patent modern Venetian stucco, consisting of specimen of "blanc statuinaire," &c. Column, table, and column of cast iron, coated. A peculiar feature in this stucco is its applicability to coating all kinds of metal. By this process the metal is prevented from being acted upon by atmospheric influences.

Stone, with marble-like polish, subject, Virgin with infant; piece of cornice; stone pedestal. By this process, stone columns, and carving of every description, are made closely to resemble marble.

- 37 & 38 HALL, J. & T., *Marble Works, Derby*—Manufacturer; TENNANT, J., *Strand*—Importer.

Specimens of articles manufactured by aid of steam machinery, at the Derby Marble and Spar Works.

Chimney-piece of black marble, from the quarries of the Duke of Devonshire. Exhibited in connection with a stove-grate of Mr. Haywood, Derby.

Model of an Egyptian obelisk, in black marble, the hieroglyphics and Greek inscription copied from the original brought from the Island of Philœ by Belzoni.

Tripod, carved in black marble.

Vases in black marble, copied from Greek terra-cotta vases found near Naples, and brought to England by Lord Western; the figures and ornaments produced by extracting the colouring matter of the marble, without injuring the polish.

Vases, Grecian form, in plain black marble.

Vases, Etruscan form, ornamented with flowers, by extraction of the colour from the black marble; vases, Medicis form, ornamented with various figures.

Tazza of Derbyshire rosewood marble; black marble, with handles; stalactite (Oriental alabaster); and variegated alabaster (gypsum).

Cups, lotus form, with fluted stem.

Chalice, with coronated cover; chalice, plain black, called "Newburgh," and "Wescomb."

Candelabra, ornamented with Thorwaldsen's Night and Morning, scrolls, &c., with fluted shafts on pedestals, and with fluor spar middles.

Candlesticks, various patterns, in black marble, alabaster and fluor spar.

Vase of Derbyshire alabaster on pedestal.

- 39 WOODLEY, JOHN, *Marble Works, St. Mary's Church, Torquay*—Designer and Manufacturer.

Circular marble table (on pedestal), inlaid with choice and rare specimens of marbles and madrepores, of the different varieties found in Devon.

Twelve-sided polygon marble on pedestal, similarly inlaid.

Oblong table, the centre of which is one slab of a beautiful specimen of red marble, with a border inlaid of madrepores found in the immediate neighbourhood of Torquay.

- 40 VALLANCE, JOHN, *Mutlock Bath, Derbyshire*—Designer and Manufacturer.

Grecian-formed vase of fluor spar, or fluete of lime, commonly called "Blue John." Specimens in the rough state.

Black marble Hebe vases, the marble from Ashford, Derbyshire; tazza vases, known as the Devonshire vases,

on plinth; and copy of the great obelisk, now standing at Karnak, Thebes.

Antique-shaped carved vase, supported by a tripod of dolphins, and square-topped vase, escalloped, and antique shaped, in black marble.

Slab inkstands with and without drawers, in rosewood and black marble. The same, with pen-tray, inlaid with specimens of spars, marbles, &c.

Tazza vases, in black marble, tops inlaid. Black marble cross, inlaid with various specimens. Black marble obelisks and candlesticks, inlaid with various specimens. Model of a Roman bath, rosewood marble.

The marble of the preceding articles is from Ashford, Derbyshire.

Various inlaid articles. Bell-shaped purple fluor-spar vases, on black marble base.

Pair of purple fluor-spar columns, with black marble pedestals; intended for candles, camphine or other lamps, or branches. Purple fluor-spar vases, or bowls, of the tazza and Grecian shape, all on black marble bases.

Oblong black marble table, supported on two elegantly formed pillars, on ornamental stands: top surrounded by an antique border of various spars, marbles, stalactites, &c., enclosing a centre of malachite.

Octagonal black marble table, with gadrooned pillar and triangular plinth, of the same: top inlaid with a wreath of flowers, formed of various rare mineral substances: a passion-flower in the wreath composed of a thousand separate fragments of various kinds of stone; &c. Similar table top inlaid in an antique pattern, with specimens of malachite, lapis lazuli, stalactites, fluor spar, marbles, &c.

[The materials which form the staple of Derbyshire in the department of mineral manufactures, and the special mode in which they are worked, are illustrated in the above series; and the most remarkable of them, the fluor spar, deserves some notice.]

Fluor spar (*Fluoride of Calcium*), is particularly abundant in veins in carboniferous limestone, associated with calc spar barytes, and the ores of lead and zinc. It is found in a crystalline state, transparent, and often in groups of cubic crystals. It is somewhat harder than calc spar; its specific gravity is 3.1 to 3.2; and when exposed to the action of sulphuric acid in the state of fine powder, it gives off fluoracic vapours which corrode glass. Fluor spar decrepitates on burning charcoal, and before the blow-pipe it loses its lustre, and becomes of milk-white colour. It is often phosphorescent when heated.

Its natural colours are amethystine violet, both pale and dark; bluish green, and wine yellow; but other colours are given artificially by heat and sulphuric acid. It is brittle, but works into ornaments of almost any kind, and often of large size.—D. T. A.]

- 41 OLIVER ISAAC, 52 *Upper John Street, Fitzroy Square*—Designer.

Imitations of Sienna, Mona, and rouge royale marble.

- 42 HALL, WILLIAM, 5 *Prospect Row, Walworth*—Designer and Producer.

Writing on enamelled slate in imitation of glass.

- 43 WRIGHT, JAS., *Aberdeen*—Manufacturer.

Polished granite ornamental head-stone.

- 44 BUCKLEY, G., *Bayswater*—Producer.

Column and two slabs, painted in imitation of Sienna marble.

- 45 DOLAN, DENIS, 13 *Blackfriars Street, Salford*—Manufacturer.

Scagliola Gothic columns, with arch; illustrating a new method of working, by which any shape can be obtained, such as fluted columns or arches. Stone, iron, or wood columns are covered with great facility.

46 MAGNUS, GEORGE EUGENE, *Pimlico*—Inventor.

Manufactures in slate:—

One end, and a portion of two sides of a bath-room, in enamelled slate; representing various marbles inlaid after the style of Florentine mosaic.

Pair of candelabra, to represent porphyry.

Patent billiard table, with legs and frame enamelled, representing various marbles.

Circular table top, representing black marble, inlaid with lumachelle and jasper.

Pedestal, representing porphyry, with black marble, plinth, and jasper.

Chimney-piece representing black marble, with ornamental arched front to stove.

Chimney-piece, mosaic foliage, flies, &c., on green marble ground, and jasper band.

Arched front to stove, representing various stones, the spandrels representing inlaid porcelain, with enamelled flowers.

Oblong slate table top, variously marbled. Ink trays.

[The application of slate to produce imitations of marble by coating the surface with colour, which is afterwards burnt in at a high temperature, is extensively illustrated in the various objects shown by this exhibitor. The advantages of the method are its durability, beauty, and cheapness. The hardness of slate renders it well adapted for many decorative purposes, from which its ordinary appearance altogether excludes it; and thus the exhibitor, in introducing a method of giving to slate extreme beauty of appearance not easily injured or destroyed, has greatly enlarged the uses to which the material can be applied.—D. T. A.]

47 FRANCIS, CHARLES, & SONS, *Nine Elms*—Manufacturers.

Patent screen of Parian cement, representing in the finer qualities various marbles the centre panel of coarse quality, gilded, and painted in encaustic on the same day that the cement was set. Coarse Parian cement, stuccoed on lath, and painted the same day, to show the rapidity and security with which chambers may be completed. Various other specimens.

Medina cement, a concrete block, weighing two tons, mixed with three bushels of cement, the rest shingle; lifted in seven days.

Section of a railway-cutting, the banks lined with a percolating mass of cement concrete, four inches thick, carrying the land springs or rain water to the drains at foot, without injury to the banks.

A cement water-filter, applicable to extensive purposes of filtration in water-works, &c.

[Parian cement, like many others in common use, is made of calcined gypsum, containing a little lime and aluminous earth, afterwards mixed with a certain proportion of alum. The gypsum is first deprived of its water of crystallization by burning, and is then thrown into a butt of water saturated with alum. At the end of six hours it is taken out, and after being dried in the air is again burnt, the heat being carried to a dull red. It is then ground, and lastly, instead of being mixed with water before setting, it is made up with a solution of alum. It dries slowly, and, if mixed with sand, is of extreme hardness.—D. T. A.]

48 THOMNHILL, JAMES, 7 Windmill Place, High Street, Cumberwell—Producer.

Two small tables, with tops inlaid with plate glass, in imitation of about 100 kinds of marble, supported by two figures with fruits and flowers, representing Spring and Autumn, finished in bronze, the whole painted without the aid of brushes of any description.

49 LIPSCOMBE, J., & Co., 93 Regent Street—Manufacturers.

Two drawing-room fountains, in glass and marble.

50 and 34 FLOWS, WILLIAM, *Foss Bridge, York*—Designer and Sculptor.

Statuary marble table, tessellated in the centre with petrified wood (found in Yorkshire), cut transversely; granulated and inlaid with branches of oak with acorns, surrounded by slabs of petrified wood, cut longitudinally, and with granulated flowers and small branches. The pedestal is of Yorkshire marble, girt by a wreath of flowers, in statuary marble upon a Santo Porto ground. The fossil wood is exceedingly hard.

Black marble table, with masonic symbols, found in the crypt of York Minster.

Small figure of David, carved in stone.

51 DURRA, —, Producer.

An outline drawn on tiles, and afterwards burnt in in the usual way.

52 BROWN, ROBERT, 38 Great Russell Street, Bloomsbury—Designer and Sculptor.

Sepulchral monument of the decorative period, executed in Caen stone.

[The Caen stone is admirably adapted for internal work, from its uniform texture, rich colour, and comparative facility of working. It has been much used in many English cathedrals and other ecclesiastical buildings, and also in the interior of the new Houses of Parliament.—D. T. A.]

53 LANE & LEWIS, *Clifton, near Bristol*—Designers and Executors.

Statue of St. Peter, in canopied niche of Caen stone. On the pedestal are angels holding a scroll; on shafts, supported by their emblems, the four Evangelists, &c.

54 BAKER, ROBERT CHAS., 31 Abchurch Lane, Southampton—Designer and Modeller.

Original model of a cemetery memorial, with symbolic representations of Faith, Hope, and Charity, in canopied niches, and the carvings of the decorative period of architecture.

55 STUART, W. (Mem. Inst. C. E., Superintendent of H. M. Breakwater), *Plymouth*—Producer.

Polished marble slab on two pedestals, composed of limestone from the breakwater quarries, Plymouth.

56 MOON, G., *Godalming, Surrey*—Designer.

Octagon table, made of several kinds of marble.

57 BELL, J., 25 Buckingham Place, Fitzroy Square—Designer and Manufacturer.

A pair of obelisks in polished oolite.

58 HOBAN, M., 41 Bolton Street, Dublin—Manufacturer.

Conglomerate marble table top. Table-top of red and white Irish marble, from Churchtown, county Cork.

59 RUMLEY, —, *Essex Street, King's Cross*—Manufacturer.

Two small table ornaments, cut in marble.

60 NEWMAN, W. H., *Bathford, near Bath*—Producer.

Bust in Bath freestone. Milton.

61 WHISHAW, FRANCIS, Inventor.

A chess table of novel construction.

63 ROWLANDS, ISAAC, *Llindogai, near Bangor, Wales*—Manufacturer.

Giant ink stand, sculptured from a block of slate stone, taken out of the Penrhyn quarry, near Bangor.

- 65 PEARSON, WILLIAM POTTS, *Harrogate, Yorkshire*—
Producer and Designer.

Octagonal stalactite table, composed principally of specimens from the Dropping Well, Knaresborough, and from various portions of the magnesian limestone in the neighbourhood of Knaresborough and Harrogate.

- 66 PORTER, W. H., 3 *Pembroke Road, Dublin*—
Proprietors (in trust).

Specimens of ware, manufactured by Murray and Cowper, of Glasgow, from Irish clays. Ornamental specimens of Irish marble, from Clifden, county Galway, worked by A. M'Donald, a self-taught artist.

- 67 GRIFFITHS & STRONG, *Eastron, near Whithy*—
Manufacturers.

Cement stone. Manufactured cement stone.
Model of an agricultural cottage.
Cement tiles for facing houses.

- 68 ALLEN, C. BRUCE, 12 *Lower Portchester Street, Hyde Park*—Designer.

Model of a labourer's cottage, with improvements in construction to lessen expense, adapted for agricultural districts. The walls are of pise, or compressed gravel, strengthened by forming the quoins, windows, door openings, and chimney shafts, of brick, the partitions of hollow brick. The roof is formed of tile, with an improved mode of fixing, and the angles where the roof touches the brickwork are covered and made water-tight by a new form of tile or angle fillet; this angle fillet would be found to be a great improvement on the ordinary means of forming the angles of mortar. The woodwork throughout is rough from the saw, and where in sight is stained, no paint being used. The timbers of the ceilings are rough and stained, and without plaster; the floors of the lower story paved with tiles; the upper floors of wood, rough; the skirtings of wooden fillets fixed to the floor; the plaster of walls running through. The stairs are formed of wooden bearers, and the stair treads of earthenware slabs. The window frames and sashes are of iron. The interior surface of wall is of plaster, impressed with a pattern, and coloured at the same time; thus dispensing with paper, and producing a more pleasing effect, the improved plaster shows light and shade as well as colour. The fire-places are formed of encaustic bricks. The whole is proposed with improvements in warming and ventilation.

- 69 NICOL & ALLAN, THOMAS & JAMES, 57 *Upper Marylebone Street*—Designers & Painters.

Specimens painted on slate, in imitation of marbles, for the decoration of halls, staircases, pillars, &c. Design for a circular table top, painted in imitation of inlaid marbles.

- 70 LAMBERT, ALEXANDER C., *Cong Abbey, Ireland*—
Proprietor.

Dark green Connemara marble tables and serpentine tables from Ballynahinch quarry, county Galway; standing on large massive pedestals of black Galway marble.

[Ireland is exceedingly rich in some varieties of marble and ornamental stone; and of these the black marbles of Kilkenny and Galway, and the green kinds from Connemara, are well known and much exported. The quarries from which these are obtained are considered capable of almost indefinite extension.—D. T. A.]

- 71 ROYAL DUBLIN SOCIETY—Producer.

Bust pedestals of white statuary and green Connemara marble, from quarries in Donegal.

- 72 MONTAGLE, Lord, *Mount Trenchard, County Limerick, Ireland*—Proprietor.

Specimen of statuary marble, from Dunlavy Quarries, county Donegal: statue of the late Henry Grattan, M.P.

[This specimen of marble is more like that used by the ancients, and obtained from the Isle of Paros, in Greece than any that is now known. It is remarkable for tint, but chiefly for the peculiar texture it possesses D. T. A.]

- 73 FRANKLIN, P. L., *Galway, Ireland*—Proprietor.

Bust pedestal of black marble from Lough Corrib, county Galway.

- 74 M'DONALD & LESLIE, *Aberdeen*—Manufacturers.

Granite vases, pedestals, and a slab for table top.

- 75 PEARCE, WILLIAM, *Truro*—Manufacturer.

Table of steatite, from the Lizard district, Cornwall. Candelabra of steatites and serpentines, of various colors. Columns of serpentine, from same district.

Pedestals of granite, from Lamorna Cove, near Land's End; from Constantine, Cornwall; and from Carnaew, Cornwall. Pedestal of porphyry, from With Cornwall. Columns of black and red granite, from Luxulian, Cornwall; of black and yellow granite, from Lulivery, Cornwall; and of steatite, from the Lizard Cornwall. A group of these articles is represented in the following engraving.



Pearce's Pedestals, Vases, Candelabra, &c.

Chimney-piece of granite, for a hall, from Lainorna Cove, near the Land's End. Side or hall table, of granite, from the same locality.

Timepiece stand of steatite, and tazza and stand, of steatite and serpentine, from the Lizard district, Cornwall.

Vases of serpentine, from the Lizard district. Table of porphyry, from Withiel, Cornwall. Vases of steatites and serpentines, from the Lizard district, of various forms.

[The steatites of the Lizard occur in veins in the serpentine, and are often intermingled with fragments of the containing rock, producing a material of great beauty, well adapted for the manufacture of small ornamental objects. This steatite, according to Klaproth, consists of silica 45, magnesia 24.75, alumina 9.25, iron 1, potash .75, water 18; containing a larger proportion both of alumina and water than in other localities. Steatite is much softer than serpentine, contains a larger proportion of silica, and is not attacked by muriatic acid.—D. T. A.]

76 OLDFIELD & Co., Ashford—Manufacturers.

Column of black marble, from the Arroch Hill quarry, Ashford. Column of laminated rosewood marble, from Nettle-Dale, near Ashford. Column of russet grey marble, from High-Low, near Sheldon. Column of light entrochal marble, from Ricklow-Dale, near Monyash.

77 WOODRUFF, T., Bakewell—Manufacturer.

Inlaid marble tables; designed by L. Gruner, Esq., and executed by the exhibitor for H.R.H. Prince Albert.

Black marble chess-table, inlaid border, with pedestal. Black marble carved vase. Blue John spar vase, after the antique.

[The Blue John used for various ornamental purposes, is a crystalline fluor spar, abounding in the galena veins, which traverse the carboniferous limestone of Derbyshire and Cheshire. It occurs native, of a rich blue, green, and yellow colour, but is frequently tinted artificially to produce varieties of effect. It is a brittle mineral, rather harder than carbonate of lime, phosphorescent on exposure to heat, and of moderate specific gravity (3.1 to 3.2). It gives off fluoric acid when exposed in powder to the action of sulphuric acid.—D. T. A.]

78 REDFERN, GEORGE, Ashford, near Bakewell—Manufacturer.

Marble mosaic table, 4 feet in diameter, chiefly composed of the productions of Derbyshire, from a new design. Black marble vase, copied from the antique.

79 TOMLINSON, JOHN, Ashford—Manufacturer.

Oblong mosaic tables of Derbyshire and Staffordshire marbles, mounted on black marble frame and pillars.

Circular mosaic table, star centre, with Derbyshire red marble, black marble, and specimen border, on carved Fonthill foot triangular plinth, on scrolls.

Octagon black marble table, inlaid with birds and flowers, scrap-bands, mounted on octagon pedestal, tray-post plinth, with scrolls.

Octagon Derbyshire black marble table, inlaid with groups of flowers and birds, mounted on black marble pedestal, tray-post plinth, with scrolls.

Inlaid black marble chess-table, mosaic border, mounted on carved Fonthill foot, triangular plinth, on scrolls.

Black marble table, inlaid wreath of flowers, on carved Fonthill foot, &c.

Specimens of mosaic work, portrait of H. M. the Queen, partly composed of foreign marbles.

80 BRIGHT, SELIM, Burton, Derbyshire—Manufacturer.

Black marble vases, exhibited for size, colour, polish, and finish. The handles are carved out of the solid marble; the material is from the Duke of Devonshire's Derbyshire quarries.

Large tripod vase or stand, exhibited for size, colour, and form.

Mosaic octagon table or dish, of Derbyshire workmanship, inlaid with wreath of flowers, butterflies, &c., on a tripod pedestal. The table turns round on a pivot from the foot.

"Devonshire" vase of Derbyshire black marble, handles out of the solid block.

"Portland" vase of Derbyshire black marble, the subject etched with fluoric acid. Black marble chalices.

"Blue John," or amethystine fluor spar chalice, being a specimen of the stone, from Castleton, Derbyshire.

Dish of black marble, unpolished, showing the state of the work prior to the inlaid coloured stones being put in.

81 LOMAS, JOHN, Bakewell—Manufacturer.

Pedestals of Derbyshire marbles, intended for busts. Chimney-piece of Derbyshire black and Sienna marbles, inlaid with design in mosaic. Chimney-piece of the Derbyshire rosewood marble, parts of which are sculptured.

[The Derbyshire marbles are entirely derived from the carboniferous limestone, and owe their varieties of colour and condition to various admixtures of carbon and metallic oxides. They are occasionally fossiliferous, being composed of corals, encrinital stems, or shells; sometimes oolitic; sometimes partly or entirely crystalline; and sometimes veined. They are for the most part well adapted for ornamental works. The black marble is abundant, excellent, and much used.—D. T. A.]

82 TURNER, JAMES, Burton, Derbyshire—Manufacturer.

Two jugs, each 56 inches high, made of black marble, found at Ashford, Derbyshire.

83 BIRD, EDWARD, Matlock Bath, Derbyshire—Manufacturer and Engraver.

Models in black marble of the obelisk at Heliopolis, and of the Philæ obelisk, the one having the hieroglyphics carved out, and the other the ground etched out with nitric acid.

Black marble slab, with "The Scanty Meal," cut out with steel points.

Black marble card plates, with etched ground, some partly etched and partly cut, others wholly cut with steel tools.

85 ORGAN, J., Penzance, Cornwall—Manufacturer.

Baptismal font, chimney-piece, chess-table, columns, obelisks, vases, carved and plain; cabinet of specimens, &c., of serpentine stone from Lizard, Penzance.

[Serpentine—a silicate of magnesia, coloured by iron, manganese, copper, and chromium—occurs in various places in Europe, and has been long worked and much admired as an ornamental stone. The finer kinds, known as ophite, verde, antique, &c., occur chiefly in Italy, and are very hard and of somewhat different appearance from those of the Lizard Point, Cornwall, whence are obtained those here exhibited. The Cornish serpentines are extremely varied in colour, exhibiting veins of red traversing an olive green ground, and are comparatively soft and easy to work. They are obtained in blocks of large size, and are capable of being brought into use as marble, and at prices not much more considerable. A very large block is exhibited outside the west end of the Building, in the south inclosure. Large quantities are now quarried at the Lizard Point.

The serpentine occurs in veins, which also contain copper, and veins of steatite frequently penetrate the serpentine mass.—D. T. A.]

The annexed cuts represent some of these objects.



Serpentine Obelisk.

80 MITTON, H., & Co, *Stoke-upon-Trent, Staffordshire*
—Manufacturers.

Tiles, terra cotta, and vases, &c., in imitation of Majolica ware. Encaustic and other tiles. Porcelain bath-stove, in ornamental brick. Friezes, in porcelain.



Font and Vase in Serpentine.

87 THE EARL OF LOVELACE, *East Horsley Park, Ripley, Surrey*—Producer

Ornamental bricks and tiles, designed and manufactured at Ockham, in Surrey.

88 SINGER & Co., *Vauxhall Lottery*—Manufacturers.

Specimen of patent mosaic pavement for churches, halls, &c., manufactured of highly vitrified coloured clays impervious to moisture, and very durable. Stone ware still and head, of an improved material, glazed inside, with worm or condenser. Acid receiver, of improved material. Pan, for boiling acids, of an improved vitrified material. Design in colours of a portion of a patent mosaic pavement lately executed, showing the intersection of four corridors.

[Mr. Singer's patent, obtained in 1839, had reference to a new mode of forming tesserae by cutting, out of thin layers of clay, pieces of the required form, which are afterwards dried and baked in the usual way. The patent also included a new method of uniting the tesserae with cement. This invention is considered to have been a great step towards the revival of the Roman art of making tessellated pavements.—D. T. A.]

89 RUFFORD, FRANCIS, T., *Stonbridge*—Manufacturer and Patentee with J. FINCH, 6 *Pickard Street, City Road*.

Bath, adult size, in one piece, made with fire-clay plated with porcelain, and glazed; wash tub; steam or dolly-tub; assorted bricks, adapted to form waterproof walls, &c. Broken piece from a bath, perforated to show the combination.

The plating of porcelain materials on the fire-clay, by patent process, renders its surface capable of glazing, painting, or gilding.

- 90 RAMSAY, GEORGE HEFFEL, *Derwent Haugh, Newcastle*
—Producer. Agent, A. HUIST, 65 Mark Lane.
Carved specimens of cannel coal, including a wine cooler.

- 91 MARGETT, T. K., and EYLES, H., *Oxford*—
Producers.

Sculptured baptismal font, in Caen stone. Designed by T. K. Margett, and sculptured by H. Eyles. This font is represented in the annexed engraving.



Margett & Eyles' Sculptured Baptismal Font.

- 92 BLANCHARD, MARK HENRY, *King Edward Street, Westminster Road*—Manufacturer.

Terra cotta.—An Ionic capital, intended for Clifton House, the seat of the Duke of Sutherland. Designed by C. Barry, Esq.

Gothic pinnacle, executed for a new chapel, Tottenham. Designed by F. Puget, Esq.

Model of the Yarborough testimonial. P. Rolt, Esq.

- 93 FERGUSON, MILLER, & CO., *Heathfield, near Glasgow*—Manufacturers.

Copy of Warwick vase, in fire clay, with pedestal. Exhibition vase, in fire clay, with pedestal. Ornamental flower vase, with pedestal. Specimens of ornamental chimney cans, in fire clay. Variety of small models in fire clay. Specimens of glazed stoneware pipes. (*Outside.*)

[The fire-clays commonly used in the manufacture of such kinds of pottery-ware as are used for outside ornamental work, are nearly pure hydrous silicates of alumina, the best kinds (used for finer work) containing two atoms alumina to three atoms silica, and these approaching more or less nearly to such proportions, but containing an excess of silica, a little oxide of iron, lime, magnesia, and occasionally carbon. They are abundantly found underlying coal seams, in districts where coal is worked.—D. T. A.]

- 94 BOWEN, J., *Brilgewater*—Producer.
Two figures in artificial stone—a Nymph, and Fidelity.

- 95 DOULTON & WATTS, *Lambeth Pottery*—Inventors and Manufacturers.

Articles in stone ware, viz.:—
Condensing worm, capable of resisting the action of the strongest acids.

Ornamental Gothic vase, adapted as a water filter.
Feet warmer, carriage warmer, and breast warmer, with air-tight screw stoppers, of the same material, instead of corks.

Pipes, connected together by air-tight screw joints, of the same material.

Jars, with covers of the same material, ground air-tight with flat surfaces. Invented and manufactured by the exhibitors.

Closet pan, with syphon trap, for sanitary purposes.
Stop cock, of unusually large size, and capable of resisting the action of the strongest acids.

- 96 BELL, J., & CO., *Glasgow*—Manufacturers.
Specimens of vases in terra-cotta.

- 97 RANSOM & PARSONS, *Fild Wharf, Ipswich*—
Inventors and Manufacturers.

Artificial stone in the raw state, and in its various stages of manufacture under the patent process.
Specimens of patent stone in its various applications.

[The artificial stone, referred to above, differs from cements and other artificial stone, in the employment of silica both as the base and combining material. It may be regarded as a collection of particles intimately combined with silicate of soda, by which they are held

together as by a kind of glass. The materials, consisting of sand, clay, fragments of granite, marble, &c., with a little pounded flint, are moulded into form by the aid of a solution of silicate of soda, and are then burnt in a kiln at a red heat. The water is thus driven off, and an insoluble silicate produced, so that the whole becomes a hard compact mass. This stone is much used in various ways, both in a compact, porous, and ornamental state.

[D. T. A.]

98 SPROT, MARK & THOMAS, *Garnkirk Works, near Glasgow*—Manufacturers.

Jets d'eau, vases and pedestals, chimney-cans, salt-glazed water-pipes, and fire-bricks, manufactured from fire clay or terra-cotta.

[Terra-cotta is a species of earthen, or rather stone ware, composed of potters' clay, fine sand, and pulverized potsherds; these materials are thoroughly incorporated, and either modelled or cast (in the state of a thin paste) in porous plaster moulds, which absorb the water with which the materials are mixed. After air-drying, the objects are baked in proper kilns at a very high temperature. The term terra-cotta means literally baked clay, and is applied to a large class of antique works of art modelled in clay, including those which have been merely dried in the sun. The art of producing ornamental works in clay was lost until Wedgwood, to whom the fictile art is so greatly indebted, rediscovered methods by which the finest works could be produced; and by employing Flaxman, and other great artists, has left behind him specimens of art, which are eagerly sought after in the present day.—W. D. L. R.]

Specimens of fire-clay, in lump and ground. Model of a flint-glasshouse furnace.

The ornamental vases, pedestals, and fountains are adapted for gardens, pleasure-grounds, &c. The salt-glazed water-pipes are intended as a substitute for iron pipes, for conveying water, &c.

(See Outside, No. 89.)

99 GRANGEMOUTH COAL COMPANY, *Grangemouth, Scotland*—Manufacturers.

One fountain sea-horse and boy. Two large vases and pedestals, newly designed, by Mr. Wornell. Two small vases and pedestals, manufactured from fine fire-clay.

Windguard chimney cans. Salt-glazed pipes of various diameters; piece of pipe broken to show the texture. Fire-bricks of different sizes. Fire-clay, in the raw state, as taken from the pit; fire-clay, ground; fire-clay, burned, but not manufactured. These articles are manufactured by the exhibitors from fire-clay taken from the pit, and used without any admixture of foreign matter.

Pipes, and double junction pipes. Fire-bricks, pressed and not pressed. Kiln plates. Bends and collars. Chimney can plinths. Chimney can. Windguard can. Small vases; pedestals for the same. Stands for lotus and plain vases. Vent lining. Zetland vase and pedestal.

(See Outside, No. 68.)

100 TOMPSON, LEWIS, *Church Terrace, Wisbech*—Designer and Manufacturer.

Moulded architectural bricks. Equilateral triangular quarterfoil brick window; 12 inch square curved panel brick. Label knees and stretchers for Gothic windows in brick.

101 LAURIE, WILLIAM, *Downham Market, Norfolk*—Designer and Manufacturer.

Models of monuments denominated "Christian Memorials," and of a tomb of the early part of the fourteenth century.

102 FERNLEY IRON WORKS—Producer.
Sundry articles in terra-cotta.

103 ROBINS, ASPDIN, & COX, *Northfleet, and Great Scotland Yard, Whitehall*—Manufacturers.

Illustrations in Portland cement, to show the strength of this material for making landings, cills, paving, &c. Model of Mazeppa in the same cement.

104 BOWERS, CHALLINOR AND WOOLISCROTT, *Brownhills, Tunstall, Staffordshire*—Manufacturers.

Various architectural decorations manufactured in pottery and imitative of other materials, viz.: Oak carved cornice. Rosewood, Gothic. Elizabethan pattern, lilac. Wash boards, oak. Centre, oak or mahogany. Ornamental bricks. Arabesque work. Cornice shaded two pinks. Grape cornice, marone fruit, green leaves and fawn stalks and gold. Grape, light oak. Grape, bronzed. Pair of groups, natural tinted grape and gold. Pair, white and gold grapes. Pair, green grapes, marone leaves, and fawn stalk and gold. Window cornice. Grape cornice, dark oak stain. Arch brick.

105 JONES, WILLIAM, *Springfield Tile Works, Newcastle-under-Lyme*—Manufacturer.

Model roof material, of plain and ornamental tiles, and ridges of blue, red, and drab (self colours), supported by corner-blocks of the same material, with dressed building bricks. Specimens of the above in full size, with varieties of plain and ornamental ridges. Spouting of the same material.

Paving, foot-bath, stable, barn-floor, flue, and malt-kiln bricks.

Paving quarries—a centre-piece for house-floor, hall, or passage, formed of several radii; red, or red and black, fitted up to a square; the same, blue and buff.

Round, octagon, hexagon, diamond, and square paving-quarries tiles, chimney-pipe, terra-metallic plain and socket-pipes for water-courses and sewerage, &c.

106 BEWICK, R., *Stafford*—Manufacturer.
Bricks of new construction.

107 HICKMAN, RICHARD, & CO., *Stourbridge*—Manufacturers.
Gas retort, made of Stourbridge fire-clay.

108 PULHAM, JAMES, *Waltham Cross, Broxbourne*—Designer and Manufacturer.

Ornamental Gothic building lumps in terra-cotta and cement. Embossed ridge in terra-cotta. Cement and terra-cotta ornaments.

Model of a mullion window, executed in cement of a natural stone colour.

Air-tight casement, closing against India-rubber.

109 HUNT, CHARLES—Inventor and Manufacturer.
Slate enamelled filter.

110 RAMSAY, GEORGE HEPPEL, *Derwent Haugh, Newcastle*—Inventor.
Fire-clay goods, plain and ornamental, gas retorts.

111 LUFF, JAMES, *Tuddenham, Ipswich*—Manufacturer.

Ornamental chimney shafts for Elizabethan houses, half size. Ornamental red bricks for the same, full size. Red and white, plain and ornamental bricks, burnt and unburnt.

Ornamental ridge tiles, with cockscombs. Red and white paving tiles, for halls, churches, &c. Malt-kiln tiles, with clay in rough state, as taken from pit.

112 COWEN & CO., *Blaydon Burn, Newcastle-upon-Tyne*—Manufacturers.

Patent fire-clay gas retorts. Fire-bricks required in setting the same. Rough fire-clay, as obtained from the mine.

Cannel coal, from Blaydon Burn colliery, near Newcastle-on-Tyne.

[Gas retorts of Stourbridge clay are now coming into very general use; they generate a larger quantity of gas, and of a purer quality; they have the advantage over iron retorts of greater economy, and more uniform retention of heat. The average duration of an iron retort is twelve months, an earthen retort will last at least double that time.—S. C.]

113 WESTWOOD & MOORE, *Brierley Hill, Stourbridge, Staffordshire*—Manufacturers.

Specimens of glass bottles and improved glazed stone ware.

114 HADDON, J. C., *29 Bloomsbury Square*—Inventor.

Specimens of rhomboidal bricks.

115 POTTER, ADDISON, *Newcastle-under-Lyme*—Manufacturer.

Ornamental vase and pedestal. Two gas retorts in flint clay. Ornamental stand for fernery, in fine clay, designed by T. O. Small.

116 WORKMAN, JOHN, *Stamford Hill*—Inventor.

Water-proof bricks, for building dwelling-houses, factories, tanks, baths, reservoirs, &c., with samples of other bricks.

117 BROWN, ROBERT, *Surbiton Hill, Kingston, Surrey*—Inventor and Manufacturer.

Grooved ridge tile—the groove admits of the vertical ornaments being made separately.

Ornamental plain tiles, used on buildings in the Gothic style of architecture.

Curved Italian tiles, in various sizes.

118 FURDHAM, JOHN GEORGE, & SON, *Royston, Herts*—Manufacturers.

Improved bricks, from clay found upon the estate of the exhibitors.

119 HARPER & MOORE, *Stourbridge*—Manufacturers.

Glass-house pots, for melting plate and flint glass. Cistern, for plate glass.

Crucibles of various sizes, made of Stourbridge fire-clay.

Stourbridge fire-bricks; and Stourbridge fire-clay retorts, and specimens of Stourbridge fire-clay.

Part of a plate of glass-house pot, which has stood the heat of a melting furnace upwards of five months.

Piece of a potsherd, produced from Stourbridge fire-clay, made into a casting cistern, which has stood the test of fifty-six casts.

Part of a crown glass-house melting pot, which has been submitted to the heat of a furnace upwards of twenty-six weeks.

120 STIRLING, THOMAS, sen., *Bow Bridge Slate Works, Stratford, and 473 New Oxford Street*—Inventor and Manufacturer.

Patent rapid ascension filter, capable of being constructed as self-supplying, when properly attached to cisterns and to the boilers of kitchen-ranges. Patent Royal Albert filter and wine cooler, so constructed that the water is cooled to any required degree as it passes through the filter, with the same ice that is used for cooling the wine. Patent rapid domestic filters for families, emigrants, &c.; and water filter, adapted for shipping. Economic slate pig-feeding trough, constructed so

as to keep each animal's food distinct. Slate trough for pickling meat, which, by its coolness and impermeability, keeps the brine sweet for a long period.

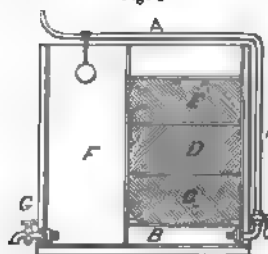
Fig. 1.



Fig. 2.



Fig. 3.



Stirling's Patent Slate Filters.

In the above cuts figs. 1 and 2 represent the patent filter and wine cooler externally and in section; H is the cover; B, the reservoir for water to be purified; F, for purified water, C, D, and E, are the beds of filtering material through which the water percolates. Fig. 3 represents a filter to which the supply pipe A is connected. The water first enters the receptacle B, passes upward through C, D, E, and enters F in a purified state, whence it is drawn by the tap G.

Enamelled slate chimney-piece, capable of being made of any size or pattern. Chess table tops, of the same material, in imitation of inlaid marbles, and ornamented. Slate inkstands ornamented and enamelled; slate paste-table and rolling-pin, recommended for coolness, sweetness, and cleanliness; slate milk-pan, cooler than metal, earthenware, or glass. Samples of patent steam fuel.

[The filters above mentioned are constructed on an original plan, and are simple, durable, clean, and cheap. Attempts have been made in Scotland to filter the supply of water for towns on the same principle, and they have been attended with great success. As an instance, may be mentioned the town of Greenock, which is supplied with the Slaws Water, brought in an open canal from a distance of six miles, and filtered in two grand filtering reservoirs, capable of holding 80,000 gallons each. This water at the same time drives two lines of mills, in number 22, possessing a greater quantity of power than all the steam engines in Glasgow, owing to the extraordinary position of the locality, which is 512 feet above the level of the Clyde, and within a mile of the shore.

These filters being, from the nature of the material, free from decay or corrosion, accomplish the purification of water in an effectual manner. Were the Metropolis furnished with a supply of water from any quarter sufficient for all demands, it could be filtered on the principle exhibited in the above filters, with very little less expense and trouble. For this purpose a vast reservoir, selected at any reasonable distance from town, and capable of containing a supply adequate to the daily wants of the citizens, without the risk of deficiency during any part of the year, might be furnished with the means of purifying the water on the principle of these filters, and thence brought to the metropolis on the principle of gravitation, so as to yield a constant supply of this fluid in a state of the greatest attainable purity.—R. W.]

121 SKINNER & WHALLEY, *Stockton-on-Tees*—Inventors.

Vitreous, white, and coloured marble patent pastes, for mosaics, street designations, house numbers, graveyard memorials, botanical descriptions, garden numbers and borders, ornamental bricks and slabs for rooms, fronts of buildings, baths, washing houses, &c.

The compound is vitreous, and is made of different degrees of density, according to the purpose of its application; in its lowest state of vitrification it is impervious to water, and unaffected by exposure to weather.

The letters and raised ornaments on the slabs being formed of the same substance, and at the same time, cannot be peeled off. The colours are equally durable, being vitrified with the compound.

122 KENT, ALFRED, *Chichester*—Inventor and Manufacturer.

Model, showing a new system of glazing greenhouses, conservatories, &c. Invented by the exhibitor, and provisionally registered. The chief points of novelty are,—1. That by the peculiar construction of the lights, and the selection made in the materials to be used, putty and all other adhesive composites are entirely avoided. 2. That the glass can be put in or removed with such facility, that the bars and frame can be painted, the glass cleaned, and the whole effectually repaired at an immense saving upon the old system. 3. That it will not require such frequent repairs as ordinary greenhouses. 4. That in the event of a fracture, it will not be absolutely necessary to wait for the assistance of a glazier to repair the same; the simplicity of the contrivance enabling any one to become

his own glazier. 5. That leakage, a universal complaint in the old system, is here guarded against, by a peculiar grooved bar, which likewise assists in carrying off evaporation, and renders ventilation more complete. 6. That the glass, being moveable, persons can erect greenhouses upon the property of others, and remove the same securely at the expiration of lease or rental terms.

123 PEAKE, THOMAS, *Tileries, Twinstall, Stafford, and at 4 Wharf, City Road Basin*—Manufacturer.

Various specimens of terra-metallic, plain and ornamental roof tiles; garden, drain, oven, coping, kiln and flue tiles.

Specimens of common and paving bricks for various purposes. Clinker and channel bricks. Paving tiles.

Terra-metallic drain or conduit pipes of various shapes and dimensions. Chimney, flue, and top pipes.

Building 4 feet by 3 feet, with glass all round, to exhibit, in miniature, roofing, hip, and ridging; and the application of paving tiles.

Building of the same size, with different kinds of tiles.

Imitation of the "Warwick" vase, in terra-metallic.

Vase with embossed ornament, in terra-metallic.

124 SOCIETY FOR IMPROVING THE CONDITION of the LABOURING CLASSES—WOOD, JOHN, Secretary—Producer.

His Royal Highness Prince Albert's model houses for four families, erected at the Hyde Park Barracks, opposite the Exhibition Building. See annexed engraving.



Prince Albert's Model Houses.

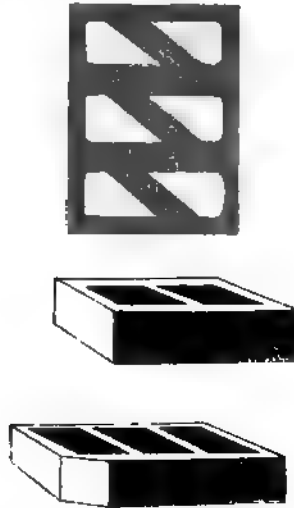
A section of a model structure. This model is intended to illustrate one of the most important branches of the Society's operations, that of the improvement of the dwellings of the labouring classes, and to show the peculiar constructive arrangements and building contrivances adopted by the Society in some of their model houses, particularly that of hollow brickwork, glazed and

unglazed, adapted for external and internal walls, chimney-stacks, partitions, floors, and roofs, whereby dryness, warmth, durability, security from fire, and deadening of sound, are obtained, as well as economy of construction to the extent, as compared with the cost of common brickwork, of at least 25 per cent.

The longitudinal bonded wall bricks, invented and

patented by Mr. Roberts, the Society's honorary architect, secure the advantage of a perfect bond running longitudinally through the centre of the wall; all headers and vertical joints passing through it are avoided; internal as well as external strength is obtained, and every facility given for the fixing of floor plates and other timbers, whilst by the parallel longitudinal cavities ample security for dryness is afforded, and great facility presented for ventilation, as well as for the conveyance of artificial heat, and for the transmission of bell-wires, pipes, &c.

The annexed section shows a wall nine inches thick; the same principle, with some variation in the form of the internal bricks, will apply to any thickness of wall.



Sections of the Hollow Bricks of the Model Structure.

The peculiar splayed form of these bricks adapts them for use as cornices and mouldings, of which illustrative examples are given in the model structure.

The bricks of which the walls and arches are constructed were chiefly made by Clayton's patent brick and tile machine.

The straw-coloured bricks were made at Aylesford, near Maidstone; the red bricks at Buxley, near Esher; the grey glazed bricks were made by Mr. Seagar, of clay from the north of Devon; and the white glazed bricks were made by Mr. Ridgeway, at the Staffordshire potteries.

The tile floors in the centre and right-hand compartments are from Mr. Peak, Tunstall, Staffordshire, or Macclesfield Street South, City Road Basin; those in the left, from Messrs. H. and R. Harwood, Burslem, Staffordshire, and No. 15 South Wharf, Paddington.

The fountain hand-basin, with reservoir beneath it, and a glazed earthenware sink, are from Mr. Ridgeway, of the Staffordshire potteries, who also exhibits, in the same compartment, specimens of hollow tiles, suitable for floors and for thin partitions, or wall linings.

The model of a group of four tile-kilns is exhibited by Mr. Ridgeway, as showing a compact and economical arrangement of an important requisite in the manufacture of hollow bricks, tiles, &c.

The prize cottage range and fender, set in the centre compartment, and the bedroom grate, with fire-brick back and cast-iron chimney-piece, in the left hand compartment, are both from Mr. W. Nicholson, of Newark.

Various specimens of ironmongery suitable for cottages, including the window-light of zinc, with iron frame and stay fastening, also various descriptions of ventilators, adapted for use with common as well as with hollow brickwork.

Model houses for 48 families, built by the Society, in Streatham Street, Bloomsbury.

Coloured views, with plans of the various model houses erected by the Society in London.

[The Society, since it was reconstructed in 1844, under its present designation, has embraced a much more extensive field of operation than that of the Labourer's Friend Society—a considerable portion of its energies being directed to the important object of the improvement of the dwellings of the labouring classes, in which difficult department it was the first Society to exhibit practical examples, and to commence a series of model buildings adapted to the various circumstances of those classes.

Four piles of new buildings have been erected by the Society, viz:—

1st. The model buildings, Bagnigge Wells, which will lodge 23 families and 30 aged females.

2nd. The lodging house in George Street, St. Giles's, for 104 single men.

3rd. The model houses in Streatham Street, Bloomsbury, for 48 families.

4th. The Thanksgiving model buildings, Portpool Lane, Gray's Inn Lane, erected in commemoration of the removal of the cholera, 1849, for 20 families and 128 single women, together with a spacious public washhouse, and a depository for hucksters' goods.

On the above buildings, including the cost of land, upwards of 30,000*l.* has been expended. The Society has also established, in Charles Street, Drury Lane, a renovated lodging house for 82 single men, and in Hatton Garden, a lodging house for 57 single women, on which about 2,000*l.* has been expended.

The result of these experiments, which shows a sufficiently remunerative return on the outlay of capital, has been submitted to the public, with a view to stimulate and guide in the general adoption of sound and practical efforts for effecting a reformation, the importance and necessity of which are generally admitted.

The amount contributed by the public towards the cost of these several model houses, has in no case much exceeded one-half the outlay. The clear revenue from rent, after the gradual payment of the sum borrowed for the completion of the buildings, will be devoted to carrying on the general objects of the Society, as defined by the Charter of Incorporation.

The building operations of the Society, have from the novelty and experimental character, been attended with more than ordinary difficulties. In thus breaking up new ground and acting as pioneers, the Committee instead of confining themselves to the comparatively easy task of teaching by precept, has laboured to illustrate and recommend their plans for improving the dwellings of the people by actual examples, which can be easily understood and imitated.]

125 GREEN, S., & Co., Imperial Potteries, Lambeth—Manufacturers

Chemical pottery wares. Complete apparatus for distillation and condensation. Manufactured in terra-cotta chemical stoneware to stand great heat, and lined with acid proof glaze.

Condensing taper cylindrical tubes, to show the means of connection by luting. Condensing tubes, spherically ground connection, requiring no luting. The cut (p. 776) represents the vast size of the chemical pottery wares.

Spherically stoppered air-tight jar, for extracts, &c., in salt-glazed stone ware. Set of Woolf's apparatus complete, with patent air-tight connexions. Test-tubes, syphons, retorts, crucibles, &c.



Green & Co.'s Chemical Pottery Ware.

Vessel of the capacity of 400 gallons, manufactured in vitreous salt-glazed stone earthenware, with patent spherically stoppered air-tight lid, and anti-corrosive cock.

Condenser or refrigerator, for distillation or cooling.

Another condenser, with the tubes so arranged as to be capable of being cleansed.

Spirit bottles cased in wicker.

(See Outside, North Side.)

126 KEY, EDWARD STINGES, *Bale, Dereham, Norfolk*—Inventor.

White brick Gothic window frame, with small mullion bricks. Red brick, light glazed girt, window frame with opening iron casement, on a new principle. Provisionally registered.

New glazed valley tiles, manufactured by W. Colman, Swanton Novers, Norfolk.

127 HAYWOOD, H. & R., *Brownhill's Tileries, near Burslem, and 15 South Wharf, Paddington*—Manufacturers.

Superior metallic clay, dug from mines near Burslem. Specimens of the clay, tempered and prepared for working, with samples of the articles manufactured from it, namely:—Tubular and heart shaped pipes, plain, socket; conical and jointed of various sizes, with bends. Elbows, junctions, syphon traps, sough grids. Channel, square, and arch bricks, and Lowe's patent stretch-trap grids, &c. Ornamental chimney shafts.

Plain and ornamental covering, hip, valley, ridge, and floor tiles, in great variety of patterns. Building, wall, coping, and stable bricks. Malt kiln tiles, skirting, and garden edging. Ornamental pavements; stable mangers; and fire-proof flue linings.

128 AMBROSE, JOHN, *Copford, near Colchester*—Manufacturer.

Gothic chimneys of red and white bricks. Specimens of white bricks and unmanufactured clay.

130 SEALT, JOHN, *Bridgewater, Somersetshire*—Inventor and Manufacturer.

Patent double and treble channelled roofing tiles.

Patent single channelled flat, or Roman roofing tiles.

Ridge and hip roofing tiles. Valley roofing tiles. Corn and malt kiln tiles. Bakers' oven tiles and bricks. Paving or flooring tiles.

Bridgewater scouring bricks, commonly called Bath bricks.

Glass jars, containing the waters of the River Parret, the scouring, or Bath bricks, are formed from the deposit of these waters. Bridgewater clays and slime.

131 BRANNAM, THOMAS, *Barnstaple, Devon*—Inventor.

Oven, generally used in Devonshire for baking bread and meat.

Syphon-trap, an improved invention for water-closets.

Gothic crease, upon an improved plan.

Earthenware juga, pitcher, and milk-pan, all made of Devonshire clay.

[This clay is raised in the parish of Fremington, near Barnstaple, Devon, on the property of Stephen Crocker, Esq. The celebrated Devonshire clotted cream is produced by scalding milk in the milk-pan here exhibited.]

132 JEPSON, W., *Edensor, Derbyshire*—Producer.

A Blue John vase, of extraordinary dimensions.

H. R. H. PRINCE ALBERT.—Exhibitor.

block of parrot coal from West Wemyss Colliery, caldy, Fifeshire, partly polished; and garden seat, gned by L. Gruner, Esq., and executed in Fifeshire, Thomas Williams Waun, of parrot or cannel coal, from estate of Rear-Admiral Wemyss.

EMERY, JOHN, North Street, Westminster—
Producer.

odel of a Gothic door in plaster.

142 CABANIC PATENT, 29 Marylebone Street, Regent Street—Producer.
Decorations in various devices.

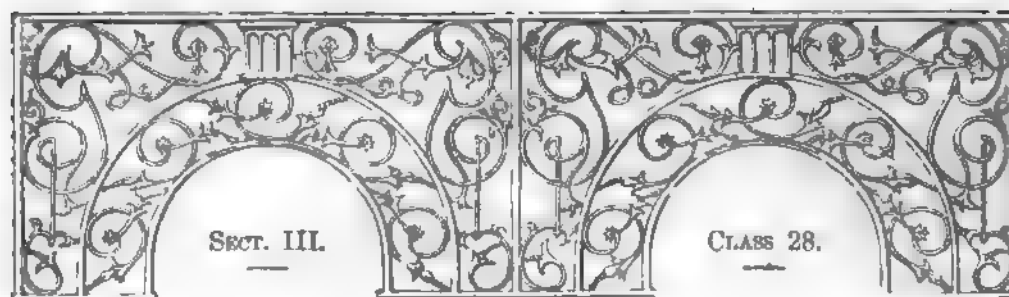
144 WHITE, J. B. & SONS, 14 Earl Street, Blackfriars—
Manufacturers.

Wall decorations in plaster and cement in various devices; also a chimney-piece in Keene's cement.

145 PYM, JOHN, 2 Moorgate Street.
An improved building material.

(The four preceding are placed on the South Wall.)





MANUFACTURES FROM ANIMAL AND VEGETABLE SUBSTANCES, NOT BEING WOVEN OR FELTED.

INTRODUCTION.

THE limits of this Class appear to confine the number of Exhibitors in it to a smaller number than in several other Classes. Many objects which are included under the general term Manufactures from Vegetable and Animal Substances have been already disposed of and arranged under other departments. That which is considered specially to distinguish those which appear in this Class is the fact of their not being either woven or felted articles. Considering, however, the great variety of articles which fall naturally under this distinction, it may appear singular that the Class is a small one numerically. But it is not to be forgotten that the manufacturer and vender, the latter appearing in the capacity of proprietor of these articles, has only a limited demand for them, and not unfrequently combines the manufacture or the sale of several in one establishment. To this, however, the exceptions of caoutchouc and gutta percha manufactures require to be made. Many of these articles, also, are not to be regarded as first requisites in the social economy—they are not of absolute requirement, nor consequently of universal demand.

The Class is thus subdivided:—The Sub-Class—A. Includes Manufactures from Caoutchouc, as, 1. Impermeable boots, life-preservers, hydrostatic beds, air and water cushions, bags, &c., and prepared water-proof and air-proof textures of every description; 2. Elastic articles, as carriage-springs, buffers, bottles, bands, washers, valves, webbing, stoppers, &c.; and, 3. Articles in caoutchouc, moulded, embossed, coloured, and printed, such as maps, bottles, cocks and taps, plugs, &c.; B. Comprehends the Manufactures from Gutta Percha for water-proofing purposes and agricultural uses—for maritime purposes, as trumpets, life-buoys, &c.—for decorative uses, as picture-frames, monklings, &c.—for surgical and philosophical uses generally, and for domestic and miscellaneous uses; C. Includes Manufactures from ivory, tortoiseshell, shells, bone, hair, bristles, and vegetable ivory; D. General Manufactures from wood, not being furniture, as turnery, carving, coopers' work, basket-work, &c.; E. Manufactures from straw, grass, and other similar materials; F. Miscellaneous Manufactures from animal and vegetable substances.

The articles belonging to this Class are placed in the North Gallery, near the Transept. They are there arranged in cases, and otherwise, and present a convenient opportunity of studying the variety of purposes to which these articles have been made subservient.

The remarkable substances, caoutchouc and gutta percha, which form so prominent a feature in this Class, are represented by a considerable number of Exhibitors, regard being had to the recency of the commercial introduction of these vegetable products. The history of caoutchouc dates considerably further back than that of gutta percha; but its application to the purposes of life is still fresh, and daily extending. It has become an article of great commercial importance. The quantity annually received by this country from abroad was, twenty years ago, only about 50,000 pounds. In ten years from that time the imports reached the annual average of between 700,000 and 800,000 pounds, and they are now considerably more than this. From a single port in South America, nearly 4,000 cwts. are annually exported to England. The commercial supplies of this valuable substance are derived principally from *Siphonia elastica*, *Ficus elastica*, and *Urcola elastica*. The two latter appear to be the principal sources of the caoutchouc received from the Indian Archipelago. The former, *Siphonia elastica*, yields the major part of the vast supply received by us from South America. This tree extends over a vast district in Central America, and the caoutchouc, obtained by incision of its milk-bearing bark, is considered to be the best adapted for manufacturing purposes. The caoutchouc of the East is rapidly rising into importance, and it being known that over thousands of square miles in Assam this tree is abundant, doubtless the imports will greatly increase as the sources of supply are more fully developed.

The discovery of the property called vulcanization, of which caoutchouc is capable, when properly treated by means of sulphur—a fact due to the experiments of Mr. Thomas Hancock—has rendered it more than doubly valuable for every purpose to which this substance is applicable. Its strength and elasticity are increased to a degree almost incredible by this process; and the objections of hardening in the cold, and of too ready solution in unctuous substances, are thus wholly removed. A variety of illustrations of caoutchouc in its natural, and in its manufactured and converted states, are exhibited in this Class. Among other applications of vulcanized caoutchouc, one which will attract much interest is the discovery of what are called “cumulators.” These consist of a number of bands of this material, which are one by one tightened until the combined power of the whole series acts upon the desired point, and, exercising their accumulated force, the power is acquired which may be applied to any desired end. A child may thus lift a ton in weight. The same power has been applied to projectile purposes.

Gutta percha is yet new to commerce and the manufacturer; but the enormous extension of its application to various purposes of use and ornament appears to promise a still greater degree of commercial pre-eminence to it than to the former substance. A subsequent note makes allusion to its introduction into this country, probably even at a period anterior to that of caoutchouc. Its recent discovery by Dr. D'Almeida and Dr. W. Montgomerie, however, is a more readily attested fact in its history. A few years since only a small piece of gutta percha, weighing a few ounces, was possessed by one individual in this country. At present, extensive factories exist, which hundreds of artisans, and powerful engines and machinery, are almost incessantly employed and in work, supplying the daily increasing demand for articles made of it; those exhibited by different persons will convey a good idea of the variety of purposes to which this material adapts itself, and for which it exhibits properties so convenient as to render it a vast boon to art, to domestic comfort, and even to physical philosophy.

Among the miscellaneous materials employed, vegetable ivory is rising into importance. This substance, yielded by a palm, *Phytelephas macrocarpa*, was, until recently, only a botanical curiosity. Its substitution for ivory is constantly proceeding; but, from the small size of the fruit, it can never come into competition with it for articles of a large size, where continuity of structure is essential. Various articles made from it are exhibited, with specimens of the material itself.

The other objects comprehended by the Class, and adequately represented in the Exhibition, scarcely appear to require special notice in this place. Having reference to specific purposes, and those chiefly of daily and domestic use, they will receive the attention they claim on inspection in the Building.—R. E.

3 HASTINGS, S., *Limerick, Ireland*—Manufacturer.

Brushes, for shoes, horses, stoves, grates, &c., made of various kinds of material.

7 JONES, DAVID, *Huy, Wales*—Designer and Manufacturer.

Welsh rustic picture frame, made with the natural excrescences of the apple-tree.

8 WALLIS, SAMUEL, *Halifax, Yorkshire*—Designer and Carver.

Ornamental carvings in mahogany for a sideboard; design, the vine and fig-tree.

9 SCALING, W., *37 George Street, Edinburgh*—Manufacturer.

Willow flower-pot stand, serving the same purpose as if made of iron or wire, it is lighter and more graceful in appearance, and exhibits a new combination of iron and willow, by which the latter can be made available for many useful and ornamental purposes.

10 WIFFELL, JOSEPH, jun., *219 High Street, Exeter*—Designer.

Open octagonal alms-basin, of walnut wood, lined with silk velvet, with pateras in the side mouldings; the whole forming the capital of a Gothic pillar. This alms-basin is represented in the following cut.



Wiffell's Octagonal Alms-basin

Circular alms-basin, same material, &c., with moveable trefoil cover. Octagonal alms-basin, with circular opening in the moveable cover. Another with battlements at the edge, with a fixed cover of tracery, and a locked opening at the back for removing the amount collected.

Improved sacramental bread-cutter; which cuts the bread three parts through; the slice will break into 25 cubical pieces.

12 RAMSEY, JAMES, *Berwick-on-Tweed*—Inventor and Manufacturer.

Bee-hive, with moveable bottom and screw, whereby the hive can be enlarged. Bee-hive, enlarged, with a moveable crown within the hive.

Bee-hive in the form of a temple, with Gothic door, spire, and moveable crown, exhibiting a glass crown, in which the operations of the bees can be inspected.

Bee-hive, ornamented with coloured willow and straw, bearing the initials of Her Majesty with the Crown wrought in willow.

13 CUNDALL & ADDY, *21 Old Bond Street*—Producers.

Broad platter and knife.

14 CHATWIN, H., *30 Durran Street, Birmingham*—Manufacturer.

Work-boxes, caddies, &c., in tortoiseshell, mother-of-pearl, &c.

15 JOHNSON, PETER, *Wigan*—Manufacturer.

A quantity of fancy articles turned in ivory, wood, and canal coal.

16 FARRAR, B., & SON, *Chapel Lane, Bradford*—Manufacturers.

Twine made from hemp, flax, and cotton.

18 CRUMACK, E., *York*—Proprietor and Manufacturer.

Tortoiseshell, ivory, and horn dressing-combs, made by hand.

20 MCCLINTOCK, GEORGE, *York*—Manufacturer and Designer.

Chain cut from a solid block of wood.

21 JACKSON, THOMAS, *3 Pinstone Street, Sheffield*—Manufacturer.

Stiff brushes. Polishing brushes, in various sizes, used by table knife and fork manufacturers, spring-knife and powder-flask manufacturers, cutlers, silversmiths, file-makers, &c.

Soft brushes. Polishing brushes, used by silversmiths for colouring. Goats' hair finishing brushes, for silver goods. Goats' hair-end brushes, large and middle.

Stiff-end brush, large and middle. Scratch-brush, for dead silver work. Scratch-end brush, for silver work. Seared end brush, and set end brush, for cream-jugs. File-brush. One joint-brush. Boil-brush.

22 SMITH, JOSEPH, 79 *Sidney Street, Sheffield*—
Manufacturer.

Mortice-lock, and knobs for doors, of various patterns, turned in ivory and fancy woods. Drawer-knobs, of various patterns, in fancy woods, ebony, zebra, and japanned. Bird's-eye maple-wood finger-plate. Ivory dado and bird's-eye maple bell-lever. Ivory keyhole escutcheon. Carved bread-platters. Beer-machine handles. Mahogany cornice-pole ring.

28 MAUNDER, JOHN, *Lanuceston, Cornwall*—
Manufacturer.

Small wood table, with miniature dessert set, turned in ivory.

29 DOW, ANDREW, 6 *Childwall Street, Liverpool*—
Designer and Manufacturer.

Veneered brushes for plate, watches, and jewellery. Plate-brushes filled with horsehair. Jewellery and watch brushes, with horse, foreign goat, and human hair drawn into small holes.

30 SCHOOL OF INDUSTRY FOR THE BLIND, *Bristol*—
Manufacturers.

Worsted hearth-rugs of different patterns and qualities. Worsted and cocoa-nut fibre door-mats. Osier nursery chair; child's cradle; baskets for linen, for carrying rolls of music, and for holding loose papers; fire-screens for hand and back of chair; nursery basket; oblong, round, and oval ladies' work-baskets; dish-mat. Made entirely by blind persons.

34 COOK, JOSEPH, *Bradford Street, Walsall*—
Manufacturer.

A variety of brushes.

35 LEE, FRANCIS, *Shipdham, Norfolk*—Producer.

Carved oak lectern, of the flamboyant, or late decorated style of architecture.

36 CRESPIN, E., *Cheshunt, Hertfordshire*—
Producer.

Model carvings of church ornaments, &c.

38 BEVINGTONS & MORRIS, 67 *King William Street, City*—
Manufacturers.

Cocoa-nut fibre matting and mats; cocoa, manilla hemp, and worsted door-mats, of various kinds.

39 TRELOAR, T., 42 *Ludgate Hill*—Manufacturer.

Samples of mattings made of cocoa-nut fibre (patterns provisionally registered). The same, with an admixture of Manilla hemp. Door-mats of cocoa-nut fibre. Hearth-rug of the same. Mattress of patent curled cocoa-nut fibre. Brushes and brooms, various, all filled with the fibre. Specimens of cocoa-nut fibre plait. Bonnet and hat made of the plait. Specimen of seating or fine cloth of cocoa-nut fibre.

40 WILDEY, WM., & Co., 7 *Holland Street, Blackfriars' Road, Southwark*—Patentees & Manufacturers.

Specimens of manufactures from the fibre of the outer husk of the cocoa-nut, consisting of floor-matting, plain and coloured; door-mats; netting for sheep-folds and other uses; hassocks; nose-bags for horses. Cocoa-nut husk; fibre from the same; fibre prepared for brushes, substitute for bristles; fibre curled, substitute for horse hair mattresses; fibre dyed; yarn spun from fibre; cordage, from fibre; curling and spinning by machinery, and patent preparation of fibre from the husk.

The use of cocoa-nut fibre for bedding presents many advantages; it does not become knotty or hard, it does not harbour vermin, and is not affected by variation of

climate; it is also recommended by the great cheapness at which it can be produced.

[The value of the cocoa-nut palm to the inhabitants of the districts in which it is found native can scarcely be exaggerated. The edible fruit is important as an article of food, and the husk in which it is enclosed supplies valuable material for the manufacture of cordage, matting, &c. Others of the palms, and other parts of this palm (*Cocos nucifera*), furnish an inexhaustible list of useful products. Thread, needles, bristles, brushes, pens, arrows, coarse cloth, and a variety of other articles, are obtained from the stem, leaf-stalks, and leaves of trees belonging to this natural family, the members of which were called by Linnaeus the princes of the vegetable world.—R. E.]

41 KING, JOHN, 49 *Tufton Street, Westminster*—
Designer, Inventor, and Manufacturer.

Straw work baskets in colours. Chandelier manufactured of coloured straw. Intended as a specimen of workmanship in straw, and also to show that straw-work can be applied to various ornamental purposes.

42 ROBINSON, VINCENT, & Co., 38 *Welbeck Street, Cavendish Square*—Importers & Inventors.

Specimen of China matting, stained in pattern (by a new process); for drawing and dining rooms, boudoirs, libraries, &c.

[China matting is said to be made from plants of the palm and rush tribes.—E. F.]

43 ARMSTRONG, JOHN, 9 *Chal's Place, Gray's Inn Road*—Designer and Manufacturer.

Summer and winter carriage rugs. Drawing-room and bed-room mats. Carriage rugs and bed-room mat of worsted, with hemp and jute. Drawing-room mat of the best worsted, with hemp, jute, and cocoa fibre.

45 KAIN, JOHN FRANCIS, 27 *Brownlow Road, Dalston*—
Inventor and Manufacturer.

Full-sized bird cage, made principally of ivory, and without wire.

47 TAYLOR, BENJAMIN, 169 *St. John Street Road, Clerkenwell*—Manufacturer.

An Oriental tower, with minarets composed of upwards of 1,000 pieces, manufactured out of the corozo, or vegetable ivory nut, the produce of New Grenada. This tower is represented in the cut (p. 781).

Vegetable ivory vases. Specimens of the vegetable ivory nut, shown in section and in their natural state. The cut (p. 781) represents these specimens. Sundry fancy articles manufactured out of the vegetable ivory nut. Ladies' table cushion, with fittings complete, in vegetable ivory.

[The ivory nut is the seed of a dwarf palm tree, producing its fruits in large round heads. The part used by turners is the hard albumen, or the part which answers to what is called the flesh of the cocoa-nut. It is as durable and nearly as hard as the ivory of the elephant, whence botanists call it *phytelephas*, or elephant tree.—J. L.]

48 FENTUM, MARTIN, 8 *Hemmings Row, Charing Cross*—
Manufacturer.

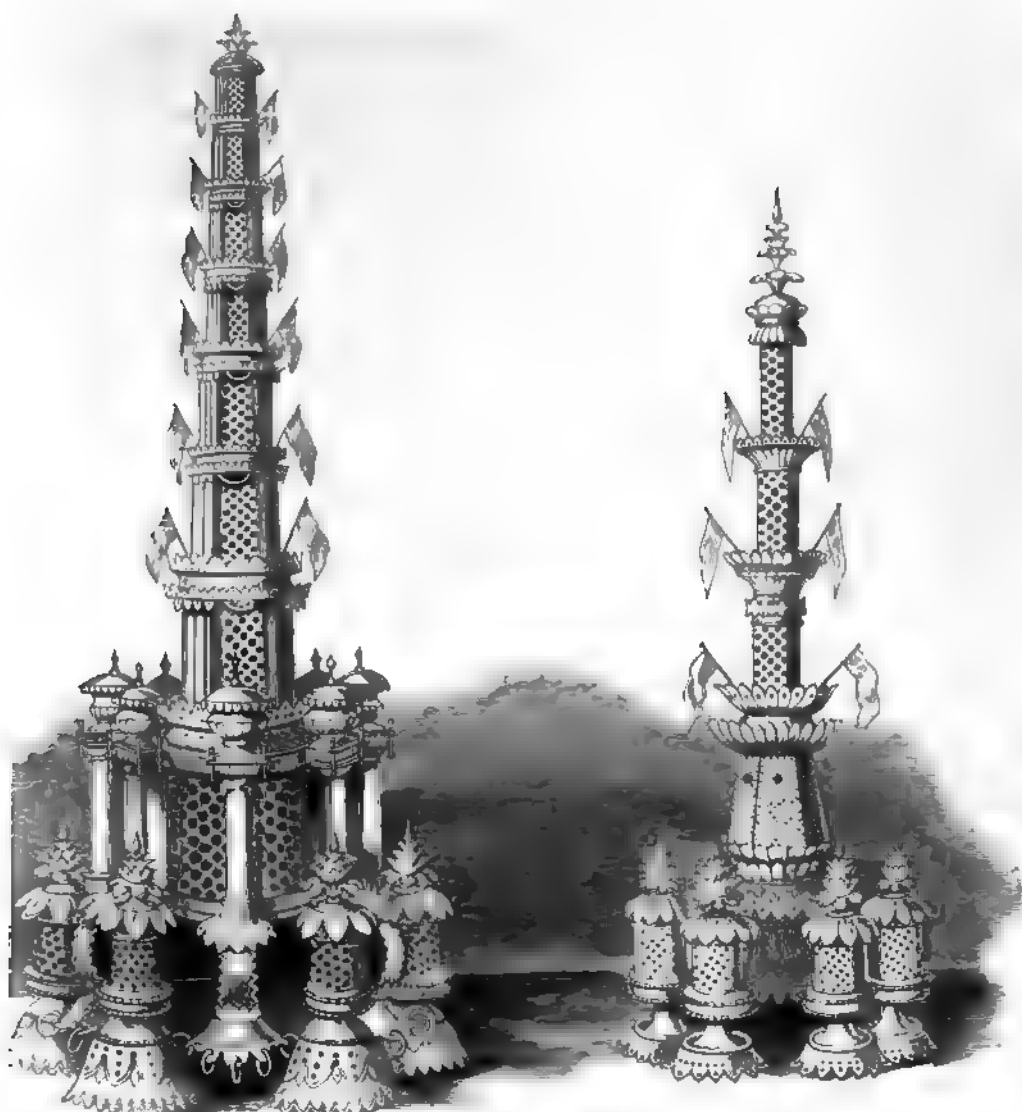
Improved ivory chessmen and chess-board.

49 BROWN, HENRY, 187 *Whitechapel Road*—Inventor.
"British ivory" (not a composition).

51 COATE, JAMES, & Co., 5 *Brewer Street, Golden Square, St. James's*—Designers and Manufacturers.

Concave tooth brush, graduated to fit large or small teeth, and bevelled.

Penetrating hair brush, drilled, elliptic. Model for carved ivory hair brushes, with new design.



Taylor's Oriental Towers in Vegetable Ivory.



Taylor's Specimens of the Vegetable Ivory Nut.

53 TITTERTON, G., 70 *Margaret Street, Cavendish Square.*
A case of brushes.

55 GOSNELL & Co., 12 *Three Kings Court, Lombard Street*
—Manufacturers.
Extracts, perfumes, and perfumery. Fancy toilet soaps of various kinds. Fancy brushes and combs.

55A SMITH, AUG., 8 and 9 *Osborn Street, Whitechapel*—
Inventor and Manufacturer.
Painting brushes, flat, and fit for heavy or fine descriptions of work.

58 RIGBY, EDWARD ROBERT, 80 *Gracechurch Street*—
Patentee and Manufacturers.
Specimen of brushes manufactured from quills. The fibre is rendered applicable for all purposes in which bristles have been used, and is considered equally useful and durable.—Patented.

60 GREEN, —, *Webber Street, Blackfriars Road.*
Specimens of workmanship in hair.

61 CHILD, WILLIAM HENRY, 21 *Providence Row, Finsbury Square*—Producer.
Improved stock brush, bound with copper. Flexible flesh brushes, made in wood, upon an improved system. Hair brushes. Improved nut-crackers.

62 TRUEFITT, H. P., 20 and 21 *Burlington Arcade, and 114 Piccadilly*—Inventor and Manufacturer.
Wigs, head-dresses, hair dyes, brushes, combs, &c.

64 ROSS & SONS, 119 & 120 *Bishopsgate Street Within*—
Inventor and Manufacturers.
Ornamental hair. Head-dresses. Peruke of grey hair, parts of it dyed of different colours. Hair lengthened artificially. Brushes, and various articles of ornamental perfumery.

65 TRUEFITT, WALTER, 1 *New Bond Street*—Manufacturer.
Carved ivory brushes and comb. Tortoiseshell combs. Head-dresses of natural hair.

67 SLAFE, GEORGE, 7 *Brook Street, New Road*—
Designer and Manufacturer.
Fancy feather brush, carved in English walnut.

68 NASH, THOMAS, jun., 19 *Swan Street, Dover Road, Southwark*—Inventor and Manufacturer.
Registered copper-bound painter's brushes, having a single copper band tightly pressed round the bristles, and rivetted through to the peg or handle, thus firmly securing the bristles and handle. The band is flattened into an oval form, by which the brush is spread so as to give it the most efficient working form.

70 TALLERMAN, REBECCA, & SON, 20 *White Lion Street, Norton Folgate*—Inventor and Manufacturer.
Waterproof Cachmere, adapted for ladies and childrens' boots and shoes, and other articles, with manufactured specimens. Black silk and satin side-laced boots. Maroon-coloured velvet boots. Specimens of black silk, satin, and velvet waterproofed; and of black silk, satin, and velvet. Patented.
Ventilating waterproof boot.

72 HODGES, RICHARD EDWARD, 44 *Southampton Row, Russell Square*—Inventor, Manufacturer, and Patentee.
Patent improvements in mechanical purchases, called cumulators. Highly elastic tackle, made of India rubber, is substituted for, or employed in combination with the rigid kind ordinarily employed, and applied so that a single man may bring any required amount of mechanical force to bear against the body to be removed.

Travellers' staffs. One of these staffs serves as a hand-carriage to convey bundles or packages. By increasing the length and strength, great weights may be carried on this simple arrangement.

Patent improvements in projectiles—consisting in the application of India rubber to guns, bows, and other projectiles, whereby harpoons, arrows, spears, balls, shot &c., may be thrown with great force, and to great distances. India-rubber guns. Bows with arrows. Arrow projector. Shot and ball projector. Sheath for projecting various missiles.

73 SANDERS, JOHN, 11 *Fore Street, Cripplegate*—
Producer.
India-rubber waterproof umbrella tent.

75 WANSBOROUGH, JAMES, 52 *Little Britain*—
Inventor, Patentee, and Manufacturer.
A waterproof cloth, in imitation of velvet, each side can be made of a different colour; suited for upholstery, curtain-hangings, binding of books, caps, hats, &c.

76 MACKINTOSH, CHARLES, & Co., 73 *Aldermanbury, and Cambridge Street, Manchester*—Importers, Manufacturers, and Patentees.
Specimens of natural caoutchouc, as imported; of India-rubber, in the various stages of manufacture; and vulcanized or converted.

Of impermeable India-rubber manufacture: inflated boats; life belts; cushions, pillows, beds, and sponging baths; sheets for covering waggons, ricks, &c.; waterproof garments; sporting and travelling articles; water and air proof fabrics; invalid beds, &c.

Impermeable and elastic: decanter and bottle stoppers; wearing apparel; boots, shoes, &c.; surgical and veterinary articles; articles for chemical uses; calico-printing articles; ship sheets, in case of accidents at sea, &c.

Elastic articles: for domestic purposes in sheet or woven articles; springs for doors; bands and bandages; buffer and bearing springs for carriages; tires for noiseless wheels, sewer and sink valves; torsion spring roller blinds; Hodges' cumulants, by which a new power is obtained for raising and suspending weights, constructing presses, and projecting balls, shot, harpoons, arrows, &c.; washers for flange and socket joints, &c.

Moulded articles for various mechanical uses; socket washer in glass model pipe; rolling piston in glass model pump; packing for steam-engines, &c. Ornamental articles for stationary purposes, &c.; elastic maps, prints, and embossings, printed webbing; thread for weaving into elastic fabrics, and ladies' ornamental work, &c.

[The process of vulcanizing, by which so many new and extraordinary qualities have been given to India-rubber, was discovered by Mr. Thomas Hancock, of Stoke Newington, a partner in the above firm, and patented by him in November, 1843.

These qualities consist, first, in a remarkable increase of strength, and a permanent elasticity. Secondly, in its resistance to the action of the essential oils, which dissolve common India-rubber, the vulcanized merely absorbs them, as a sponge does water, and from which it may be evaporated without injury to the qualities acquired by vulcanizing—and its great resistance to the action of fatty oils; and, thirdly, its being unaffected at low temperatures, which hardens common India-rubber, whilst vulcanized remains in a soft and elastic state. It also resists the action of heat, far beyond those temperatures which destroy common rubber.

These qualities arise from a peculiar combination of sulphur with India-rubber by means of heat. This important discovery was made by Mr. Hancock on immersing sheet India-rubber in liquid sulphur, when he perceived that an extraordinary change had taken place in the rubber, which he discovered to be due to the absorption of the sulphur, and not absorption only, but by a continuous

tion of the heat to certain degrees until it was found to have acquired the properties above stated, which rendered it fit for many new and important purposes in the useful and mechanical arts; and many of its qualities thus discovered are now extensively employed for uses suggested by the vulcanized rubber itself; and for which, if it fail, there is no known substitute.

In waterproof fabrics, the impermeable quality of India-rubber is preserved, whilst it remains permanently flexible and elastic; for no degree of climatic temperature renders garments or coverings made with it stiff from cold, nor are they injured by heat.

But it is chiefly for its elastic properties that it has become so valuable, and many patents have been taken out for its application, such as buffers and bearing-springs for railway-carriages; washers for flange and socket joints of metal, glass and earthenware pipes; valves and cocks for retaining or transmitting fluids; valves for the air-pumps of marine and other steam-engines; threads and sheets of elastic fabrics; hydrostatic beds and pillows for local application, and a variety of valuable surgical applications. The new power for lifting, pressing, or suspending, or restraining for sudden disengagement, an accumulated elastic force, until it is equivalent to or exceeds the effect required to be employed.

Caoutchouc is the sap of the *Siphonia elastica*, a plant of the order *Euphorbiaceae* or spurge tribe. The India-rubber tree is a native of Brazil and Guiana, where it grows to a height of 80 feet and more, running up as a clear stem to 40 or 50 feet, and then branching. The trunk is tapped by a small pickaxe early in the morning, and a cup of soft clay is stuck beneath the wound to collect the milky juice, of which each tree yields daily about a gill. It is then moulded on clay into the bottle or shoe-like shapes in which it is brought to Europe; the layers of juice being dried in smoke. This vegetable constituent is also obtained in large quantities from the East, from the *Ficus elastica* and the *Urechoi elastica*; the latter abounds in the islands of the Indian archipelago; it is a creeper so rapid in growth, that in five years it extends to 200 feet, and is from 20 to 30 inches in girth. This tree can, without being injured, yield by tapping from 50 to 60 lbs. of caoutchouc in one season; but it is very inferior in quality to that which is obtained from the *Siphonia*.—E. F.]

77 BUNN, LOCKINGTON, & Co., 19 and 20 Wildbrook—
Importers.

Specimens of the various descriptions of native Para India-rubber, or caoutchouc, and of gutta percha (or gum gutta) as imported; classified according to their value and application; with samples showing the various stages of the manufactured articles.

Specimens of the various qualities of East and West India-rubber, as imported, which are used, with few exceptions, for the purpose of mixing with Para India-rubber and other substances. A few samples are exhibited to illustrate their use in manufactures.

[Since the year 1830, caoutchouc has been largely imported, principally from tropical South America. The average annual importation of it into England from Brazil during the three years ending with 1842, was no less than 3,790 cwt. The application of this substance to the making of boots and shoes is a branch of commerce that originated in the United States.—E. F.]

78 NICKELS, CHRISTOPHER, & Co., 13 Goldsmith Street,
Cheapside—Manufacturers.

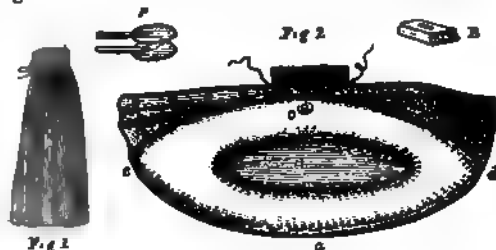
Various articles manufactured from India-rubber:—Woven elastic webs, for braces, garters, wristlets, and

glove tops; braided webs for sandals, and similar purposes, under patent; elastic cord for various purposes, such as bead-threading for bracelets, armlets, neck chains, &c.

81 MATTHEWS, SAM., 58 Charing Cross—Manufacturer.

Large sized India-rubber portable boat, after the design of Lieut. Halkett, R.N.; useful for lake fishing, duck shooting, and general purposes. The air-proof cylinder running round this boat is made in four compartments, thereby considerably lessening the danger that might arise from its being fractured in any part.

India-rubber cloak boat, designed by the same, made of ordinary waterproof material, fitted with an airproof cylinder, which, when inflated, renders it capable of being used as a boat, and enables travellers to cross rivers or streams where no other means are at hand; it also forms a good bed.



Lieut. Halkett's India-rubber Cloak Boat.

In Fig. 1, is shown the cloak boat uninflated. A large portion of the cloak is doubled in the cloth, and when air is forced between the two parts, a firm distended cylinder is formed, somewhat in shape like a horse-collar. In Fig. 2, is shown the cloak thus inflated, through the cock, *c*, by a small bellows, *B*. Within the circumference of this air-cylinder, and on the centre part (which does not inflate) the owner sits when on the water.

All beyond the length and breadth, *a b, d e*, of the boat, as the collar, loose skirts, &c., is drawn in, and so kept out of the water by a running cord.

P, the paddles, *B*, the bellows, both of which are carried in the cloak pocket.

India-rubber portable bath. This has an inflating border, which gives it the necessary form when filled with air; when uninflated it is capable of being packed in a very small compass.

82 CORDING, J. C., 231 Strand—Producer.

Silk and other waterproof coats, capable of being used with either side outwards. Waterproof capes of a new form. Ladies' waterproof silk capes and hoods, made of silk. Sundry waterproof articles.

83 HANCOCK, J. L., Goswell Mews, Goswell Road—
Manufacturer.

Vulcanized India-rubber hose-pipes, and various descriptions of vulcanized India-rubber tubing. Portable India-rubber shower bath. Hose-reel, with garden-hose attached. Inflated India-rubber bed-chair and cushion combined.

84 BAKER, C., Birch Cottage, Rotherfield Street, Islington—
Inventor.

New hair-brush and pocket tooth-brush. Model writing-desk. A new fire-escape. New pattern tooth-brushes.

85 THE GUTTA PERCHA COMPANY, 18 Wharf Road,
City Road—Importers, Patentees, and Manufacturers.

Blocks of raw gutta percha, one of them showing the deception practised by the Malays, in putting stones, &c., into the blocks. Trays of sliced and cleansed gutta percha.

Waterproof applications:—specimens of covered canvas and patent waterproof cloth of gutta percha; waterproof

soles for boots and shoes; "solutioned" jean for inner soles; hydropathic bandages; waterproof heels with metal tips.

Various articles for agricultural and manufacturing purposes.

For maritime purposes:—anchor floats, buoys, fishing-net floats, life buoys, and air-tight life-boat cells, pilots' hats, sou'-wester hats, coils of round band for signal haliards, speaking trumpets.

Decorative applications:—brackets, console tables, cornices, ceiling centres, mirror, and other frames, friezes, girandoles, panels, mouldings in imitation of carved oak, rosewood, &c., for the decoration of rooms, ships, saloons, cabinet work, &c.

Specimens of gilded gutta percha, and a variety of articles, showing its applicability for surgical, chemical, electrical, and domestic purposes.

[The history of gutta percha is remarkable. It appears to have been one of the curiosities introduced by the Tradescants into England under the title of *Mazer-wood*. But it received no commercial attention until 1843, when it was again brought to England, by Dr. D'Almeida and Dr. W. Montgomerie. Some of the earliest specimens were exhibited to the Society of Arts; and the curious properties of this substance, and its facile manipulation, were then illustrated. It now forms a most important article of commerce. From Singapore, in 1845, 169 piculs (a picul = 133½ lbs.) were exported; in the following year, 5,364; in 1847, 9,296; and in the first seven months of 1848, 21,598 piculs were shipped from Singapore to England. Gutta percha (pronounced pert-sha) is the concrete juice of a tree belonging to the natural order *Sapotaceæ*. This tree, *Ionandra Gutta*, abounds in the Malayan archipelago, and is called "Niato" by the natives. The concrete juice is prepared for manufacture by cutting into thin slices, by a powerful machine for that purpose. It is then boiled, and torn to shreds by machinery; it is after this dried, and masticated by similar kneading-machines to those used for caoutchouc. It is coloured by the introduction of colour in powder during the kneading process. Gutta percha is soluble in naphtha, chloroform, and other menstrua. The latter solution is useful in surgery.—R. E.]

85A FOUCART, Dr., 59 Arlington Street, Mornington Crescent—Inventors.

The gutta percha clavicular splint. This instrument is so constructed that it can be fitted to an arm of any shape or size, and a fracture of the clavicle may be reduced, and the ends of the bone retained in perfect apposition, merely by drawing the shoulder and belt straps to the requisite degree of tightness. The whole process only occupies half a minute.

86 THORN & Co., 98 New Bond Street—Manufacturers.

Looking-glass frames and console tables, and decorations in gutta percha; some richly gilt, and various specimens.

87 WALKER, THOMAS, 1 Conduit Street, Regent Street—Inventor and Manufacturer.

Gutta percha hat-bodies, previous to being finished. Ventilated velvet hats. Hunting helmet covered with silk velvet. Hat-case, answering the purpose of a safety life-buoy float, or as a foot-bath, and many other useful purposes. Portable rustic fountain. Letters and numbers for shop-fronts and other surfaces.

90 WEST HAM GUTTA PERCHA COMPANY, West Ham—Manufacturers.

Articles for manufacturers—driving bands for machinery, flat and round; bosses or rollers for flax, cotton, and worsted spinners; carboy, syphon, funnel, bucket, imperial measures, particularly useful in acid, alkali, chemical, dye, and print works, &c.

Useful articles—wire covered with gutta percha for electric telegraph purposes, especially for sub-marine and underground uses; sheet; soles and heels for shoes; tubing for the conveyance of water, air, acids, alkalis, chemicals, liquid manure; also for speaking tubes, fitted with mouth-pieces, and whistles; cups; basin; pulpit tubes for the deaf, in churches and chapels; railway conversation tubes; ear trumpets.

Ornamental articles—picture frames, brackets, trays, plates, inkstands, whips, draughtsmen, dice boxes, whistles, deer and hound, deer stealer (panel), deer at bay (panel), for which patents have been taken by Charles Hancock.

91 FAULDING, J., 11 Edward Street, Hampstead Road—Producer.

Fretwork cuttings.

95 SMITH, OSCAR, 21 King St., Covent Garden—Manufacturer.

Specimen of ivory turning and carving, forming a pedestal, vase, and flowers.

Unique specimen of ivory turning; a solid piece, the form of an egg, hollowed out to the thickness of the natural shell from a perforation of the 12th part of an inch. Turned by George A. Smith, 22 May's Buildings, St. Martin's Lane.

96 CLAYTON, B., 54 Mansfield Street, Kingsland Road—Inventor.

Specimens of a newly-invented method of making calico-printers' blocks and rollers.

Method of inlaying wood, gutta percha, Parian cement, papier maché, &c.

The blocks were prepared by the exhibitor without the advantage of skilled labour in such articles.

Newly-invented stamp, for stamping letters, newspapers, &c.

97 GRUGEON, ALFRED, 24 Thomas Street, Hackney Road—Designer and Manufacturer.

Fish and flower-stand, bird's-eye maple, and dyed to imitate nature.

98 TURNBULL, THOMAS, William Street, Portland Town—Producer.

Specimens of improved wood sawing, applicable to sawing deals into all sizes.

99 MINNS, JAMES, 40 Luard Street, Caledonian Road—Maker.

Model of the choragic monument of Lysicrates, at Athens. Lantern of Demosthenes, B.C. 334; scale ½ of an inch to the foot. Carved in chestnut.

100 SCHOOL FOR THE INDIGENT BLIND, St. George's Fields, Southwark—Manufacturers.

Articles manufactured by the blind. Worsteds hearth-rugs and fire screen. Work and linen basket. Antimacassar and doyleys, knit with thread. Netted silk purses and neck ties. Watch pockets. Hair brooches, bracelets, watch guards, rings, and ear-rings. Figures cut in paper by a female, blind from infancy, 65 years of age. Doll's cradle. Chaise panel. Table mat. Set of shoe brushes. Five pairs of shoes. Cocoa-nut matting. A frame used in teaching the blind to write. A map in relief. Pattern board for the use of the blind in making fancy hearth-rugs.

101 CRIPER, ROBT., 18 Artillery Lane, Bishopsgate Street Without—Inventor and Manufacturer.

New willow drawing-room chair, easy, and inexpensive. The willow sofa-bed chair, which may be used as a bed, a sofa, or a chair, and only occupy the same space as an ordinary chair.

102 WILLIAMS, JAMES, 40 Exeter Street, Strand—Manufacturer.

Linen basket of superior fineness.

103 BODE, HERMAN, 11 Portsea Place, Connaught Square—Inventor and Manufacturer.
Various specimens of basket manufacture.

104 POTTS, DANIEL, 18 St. Dunstan's Hill, Tower Street—Inventor, Designer, and Manufacturer.
Figured vase, for flowers, in basket-work, formed of inner and outer cases, the intermediate surface being waterproof.

106 McRAE, JAMES, & Co., 17 Ave Maria Lane—Manufacturers.
Scotch wood articles of new design, consisting of work-boxes, reticules, folio blotting-cases, tea caddies, stationery cases, metallic note books, perfume bottle-cases, cigar chests, snuff boxes, cigar cases, bellows, razor cases, paper-knives, book markers, needle-books and cases, match boxes, lancet cases, hearth-brushes, knitting cases, penholders, penknives and cases, spectacle cases, &c., ornamented with paintings, tartan plaids, chequers, gold and silver scrolls, &c. Exhibited for workmanship and ingenuity, particularly the Scotch hinge.

108 MALLANDAIN & Co., 5 James Street, St. Luke's—Manufacturers.
Table inkstand, with stoppered ink glasses; with jointed ink glasses, with caps; and with one stoppered ink glass made from English sycamore, stained black and polished.

109 WHEATLEY, WM., 2 Clipstone Street—Designer and Manufacturer.
Specimens of blocks or lasts for the feet.

110 BEGENT, THOMAS JOHN, 8 York Street, St. James's Square—Inventor.
Registered peg to secure linen whilst drying: also applicable to holding papers together.

111 SHEPPARD, FRED., 125 Kingsland Road—Proprietor.
Articles of fancy woodwork, manufactured in Ayrshire, consisting of needle, card, envelope and cigar cases, snuff-boxes, toothpick cases, and boxes to contain postage stamps.

112 SANDY & POWELL, 76 George St., New Road—Manufacturers.
Fret cut pedestal of walnut wood, suitable for the newel of a staircase, sideboard standard, or hall table, &c.; the shaft, top, internal, and external ornaments being cut out of the solid wood by means of a perpendicular saw, worked by machinery; thickness of the solid wood 8 inches. Fret cut truss or leg, of rosewood, suitable for a pianoforte, &c., relieved with carving, and fret cut bracket of mahogany, entirely cut and shaped by means of the same saw.

113 TAYLOR, C. & A., 30 Berners Meads, Oxford Street—Designers and Manufacturers.
Ornamental tablet, being a specimen of fretwork, cut by improved machinery; used in the decoration of pianofortes, organs, cabinet-work, &c.

116 ROUSSEAU, ALEXANDRE, 352 Strand—Manufacturer.
Shawl boxes. Velvet embroidery. Lace cases, writing-paper, and other ornamental cases.

117 HARRIS, SAMUEL & HENRY, 41 and 27 Mansell Street—Importers.
Specimens of sponges, with descriptions of their different uses.
Samples of harness polishes, dye, and polishing pastes, with specimens of their effects.

[The sponges used in commerce belong to a class of beings which occupy debatable ground between the animal and vegetable kingdoms. Different kinds of sponges are found in all seas, including those of Britain;

but the sorts suited for use are chiefly procured from the Ægean Sea, where they are torn by divers from the rocks on which they grow, at a depth of from five to as many as thirty fathoms.—E. F.]

118 BARBER, CHARLES A., Soho Bazaar—Designer.
Landscapes and figures, cut from paper with scissors, without copy or outline. Age of the exhibitor, 10 years.

119 BURGESS, JAMES, 1 Johnson Street, Horseferry Road, Westminster—Manufacturer.
Flower vase, cut from paper with scissors.

120 COLLINGS, JOHN, 14 Great Ormond Street, Bloomsbury—Inventor and Maker.
Arm-pad for journeyman tailors, designed to abolish cross-legged sitting.

121 WALLER, F., 49 Fleet Street—Manufacturer.
Commercial and diplomatic despatch writing-desk in rosewood. Small open desk for ladies, in rosewood.

122 JONES, JONATHAN, 25 John Street, Cannon Street, St. George's East—Inventor.
Shoe pegs, for use in making boots and shoes without welts or stitches. Sixteen lengths cut by hand, beginning at one-eighth of an inch; and ten lengths cut by machine.

Shoes made with pegs; and in the different stages of manufacture.

124 BASS, JOHN H., 6 Featherstone Street, City Road—Inventor and Manufacturer.
Specimens of corks cut by patent machinery. The machinery was originally patented in 1830, but it has since been much altered.

125 ESDAILES & MARGRAVE, City Saw Mills, Regent's Canal—Producers.
Specimens of novel uses of cork and of preparations of cork by steam machinery.

1. Specimens of finished hats, made of cork, with the vendors' names, and the respective weights.

2. Specimens of cork hat bodies, or foundations, made solely of cork.

3. Specimen of a cork hat-body, or foundation, strengthened by muslin, as generally made and used by the trade.

4. Specimens of cork plates, cut by steam machinery, varying from 50 to 120 plates in the inch, in the state in which they are supplied to the hat-body makers.

5. Specimens of cork tip pieces, of the like nature, in the state in which they are supplied to the hat-body makers.

6. Specimens of cork hat cylinders, partly prepared and made up, in the state in which they are supplied to the hat manufacturers.

7. Specimens of cork hat brim plates, in the state in which they are supplied to the hat-body makers.

8. Specimens of cork hat brims, partly prepared and made up, as supplied to the hat manufacturers.

9. Specimens of printing on cork plates, with type and engraved blocks, exhibited by Mr. A. J. Mayer, inventor of the steam machinery, employed at the City Saw Mills in this trade.

Fibre cut from cork by steam machinery, in its prepared condition, for the stuffing of ships' mattresses, and boat cushions, to be used at sea for the preservation of life.

1. Specimen of a sea mattress, partially stuffed with cork fibre. 2. Specimen of the same, finished. 3. Specimen of a circular bolster, similarly stuffed. 4. Specimen of the application of cork fibre, applied as a packing to the stuffing-boxes of steam-engine piston rods, and which is said to require no lubricating material.

Floating models, illustrative of the mode of using the cork fibre mattresses and bolsters, as life preservers at sea.

126 FRENCH & BUTLER, 28 Piccadilly—Manufacturers and Importers.

Specimens of different qualities of ready-made corks of English and Spanish manufacture.

127 BLIZARD, JOHN, Cheltenham—Manufacturer.

Moulded panels and mouldings cut by machinery, showing the stages of the working, with the tools employed in the process. The machine is specially adapted for running joiners' work.

128 FRANKS, C., Wolverhampton—Manufacturer.
Basket, for clothes.**131 PETERS, RICHARD, & SON, Birmingham—Manufacturers.**

Tortoiseshell clock-case, inlaid with pearl and silver in scroll pattern, with painting of St. Paul's Cathedral; the movement by Mr. Evans, of Handsworth.

Writing-desk of tortoiseshell, inlaid with various coloured pearls in scroll-work, new design. Tea-chest in tortoiseshell.

Cigar magazine, to hold six dozen cigars, in tortoiseshell, with sporting design on lid; the same in turtle-shell, embellished with painting of Mytton's celebrated leap.

Tea-caddy in mother-of-pearl, inlaid with coloured pearl. Tea-caddies in tortoiseshell of various shapes, inlaid, &c.

Hair-brush, inlaid with gold, silver, and pearl. Card-cases in various coloured pearls and tortoiseshell, of new designs and patterns. Cigar cases, tortoiseshell, inlaid.

Several articles of small manufacture, viz., brooches, coat-links, needle-cases, match-boxes, spectacle cases, tablets, &c.

Ladies' companion of variegated pearl. Work-box in mother-of-pearl, set with garnets, &c.

Tortoiseshell cabinet, inlaid with pearl; new pattern, with drawers, desk, and work-box complete.

Lady's card-case, in two coloured pearls, consisting of 730 distinct pieces of diamond-shaped shell.

Card-case, novel shape, in tortoiseshell, studded with silver, with painting in the centre.

[After being cut from the shell, the pieces of mother-of-pearl are flattened on an ordinary grinding-stone, they are then attached to the skeleton-frame, which forms the box or case, and are reduced to a uniform surface by files or scrapers; pumice-stone and putty-powder is next employed, and buff-leather, upon which rotten-stone has been rubbed, is used to impart the final brilliancy.—W. C. A.]

132 HAYDEN, JOHN, 35 Northwood Street, Birmingham—Designer and Manufacturer.

Lady's cabinet, and small cases—tortoiseshell, and pearl.

137 WHITAKER, H. W., 20 Charlotte Street—Manufacturer.

Ornamental bird-cage.

138 SPRINGFIELD, WILLIAM, Wisbech—Designer and Manufacturer.

Models of wine pipes, casks, tubs, churns, and other articles of coöper.

141 GARRETT, G., 1 Victoria Terrace, Woodbridge Road, Ipswich—Manufacturer.

Ornamental turned snuff-boxes, in ivory, and fancy foreign woods.

143 GOULD, JOHN, Tottenham Park, Marlborough—Designer.

Bible, with cover in carved oak and silver-plated clasps; worked by hand. (See the engraving, Plate 85, at page 541.)

144 RENDALL, JOHN, Stromness, Orkney, Scotland—Manufacturer.

Various samples of Tuscan plait suitable for bonnets. Specimens of 11 straws, fine Tuscans, and of 15 straws, coarse Tuscans. Grown and dressed in Orkney, and plaited by the female inhabitants.

145 STILL, CHARLES STEWART, SmooGrow House, near Kirkwall, Scotland—Proprietor.

Specimens of the straw plait, for making bonnets, hats, &c., which affords employment to the women of Orkney. The manufacture of this plait was established about 1820.

146 MACGREGOR, J. W., 28 Jamaica Street, Glasgow—Manufacturer.

Ships' harness cask, brass hooped and mounted, used for holding beef. Deck buckets, brass hooped; brass hooped and handle; and brass hooped and wooden handle. Pump can, brass hooped and handle. Mess kid, brass hooped.

Imperial bushel measures, brass hooped and mounted, with hoops flush with the staves; brass mounted and iron hooped, with handles.

Ten gallon cask, made out of red oak staves (a porous wood), and rendered tight by charging the chimb of the cask with melted tallow, a method which enables the cooper to use staves of red oak for water casks.

151 COOPER, W. M., Derby—Producer.

Pulpit, with carved figures, &c.

152 STEVENSON, J. & J., Sheffield, and 9 Cripplegate Buildings, Wood Street—Manufacturer.

Ladies' ornamental, dress, and other combs, manufactured from ox and buffalo horns.

154 TOPPIS, JOHN, & SONS, Ashby-de-la-Zouch—Designers and Manufacturers.

Improved royal letter-basket; colours, red, blue, and white; for the drawing-room.

Complete fancy knitting-basket; colours, red, blue, and white, with compartments.

Round work-basket, with dome top; colours, red, blue, lilac, green, and white.

Fancy cottage dog-kennel; blue and white.

155 DUNLOP, JOHN, Lauder, Scotland—Inventor.
Fishing or trout basket.**156 ADAMSON, ROBERT, Colingburgh, Fifeshire—Designer and Manufacturer.**

Scotch willow basket for carrying fine fruits. Manufactured by the exhibitor at Balcarres gardens, during the winter of 1850.

157 HALLIDAY, WILLIAM, Chilton-super-Polden, near Bridgwater—Producer.

Piece of carving in English oak, 3 feet long, 2 feet in width, and 7 inches in thickness. Subject, "The Canterbury pilgrims setting out from the Tabard." Executed by the exhibitor.

158 HEMPHILL, W. D., Clonmel, Ireland—Designer and Manufacturer.

A vase, in the Elizabethan style; a miniature frame; a vase, after the antique, with lily of the valley and fuschia; and twelve dessert knife-handles, of various designs: all executed in ivory.

A candlestick and a match-holder, in African black-wood and ivory.

A small vase, after the antique, in walrus ivory, showing the beautiful reticulated appearance of the interior of the tooth when turned extremely thin; a small cup, in the same material, showing the great strength of the enamel of the tooth of which the slender pillar is turned; vases in hippopotamus ivory.

159 CANNINGS, MARY JANE, 9 Walcot Parade, Bath—Manufacturer.

Models of a lady's travelling-basket, an invalid's bed-table, of vegetable and fruit baskets, and of linen, bonnet, plate, and bottle baskets. Chair-back and hand-screens. Dinner and round mats. Bushel, knife, work, clothes, and market baskets. Bouquet-holder. Flower-pot stands. Baskets for various uses.

The exhibitor is blind, deaf, and dumb.

160 HORNE, WILLIAM, 54 Montague Street, Spitalfields—Designer and Manufacturer.

Ladies' work-box, containing 1,500 pieces of wood, of about 70 different kinds, the produce of different countries.

161 HAWLEY, JAMES & THOMAS, 181 Bromsgrove Street, Birmingham—Manufacturers.

Specimens of tooth, nail, shaving, hair, and hat brushes, made of bone.

162 TATE, F., 18 Percy Street, Bedford Square—Producer.

A gilt casket symbolical of the Great Exhibition of Industry of all Nations. Plastic casts in imitation of metal.

163 WILLIAM, H., Dublin—Inventor.

Eccentric ivory turning, without eccentric chuck.

164 SHAW, C., Mount Street, Dublin—Producer.

Specimens, in ivory, of mechanical sculpture, reduced from models in plaster by machinery adapted to a turning lathe.

165 MEADOWS, JOHN, 71 Princes Street, Leicester Square—Inventor, Patentee, and Manufacturer.

New method of veneering: specimens of a veneered glass-case; Grecian and Doric column and capital, adapted for all kinds of upholsterers' work, cabinet, and piano-forte. Picture frames. Specimens of patent builders' work, without joining at the angles or edges.

166 HOWTON, GEORGE WILLIAM, 34 Thayer Street—Manufacturer.

Decorative panel, carved out of lime-wood.

167 MITFORD, BERTRAM, Cheltenham—Maker and Inventor.

Concentric-balls, made of solid spheres of box-wood. This curious art was first introduced by the Chinese.

[The mode in which the Chinese make these balls has been lately explained. In the Athenæum (No. 1094), a correspondent gave an account of one which he had examined, and in which he found that more holes had been cut out of the spheres during the working than were finally to appear, some of them being afterwards plugged up by pieces very well screwed in. He then gave a very probable account of the way in which the whole was done, and this was confirmed (No. 1096) by a gentleman who had seen the manufacture in China.—A. D. M.]

168 WINTERBORN, JOHN, Hackney Road—Inventor and Designer.

Models: self-acting index, in case of spontaneous combustion on board of vessels; portable warm-bath; self-acting extinguisher, in case of an overheated flue; self-acting fire-escape, alarm, and an indicator; groups of carving in Italian walnut-tree.

169 DAY, HENRIETTA, 4 Oakley Terrace, Old Kent Road—Producer.

A caddy formed of rare and valuable shells to the number of 100,000, the interior of the lid displays a bouquet of flowers worked in beads.

171 BEVAN, CHARLES, 100 Metropolitan Buildings, St. Pancras—Designer and Producer.

Carved walnut tea-chest, executed by hand; exhibiting the art of wood-carving in the various stages, from its commencement to its completion.

172 SMITH, THOMAS, Hurstmonceur, near Hailsham—Manufacturer.

A set of Sussex truck-baskets, made of willow wood.

173 WOLSTENHOLME, J., 12 Lord Mayor's Walk, York—Designer and Manufacturer.

Six stall finials, or poppy-heads, of decorated Gothic architecture, and various designs, carved in Norway oak.

174 STRUGNELL, H., 25 Kirby Street, Hatton Garden—Producer.

Ornamental writing-desk.

175 PEEL, JOSEPH, Pudsey, near Leeds, Yorkshire—Producer.

Specimens of ornamental turning, cut in relief, in wood, copied from coins, medals, and flowers, and of ornamental turning cut in relief in marble, from medals and flowers, by automatic machinery, the turnery averaging 1½ hour for each copy. Presented simply as the turning tool left them; they require no attendance from commencing to finishing.

176 MOORE, G. W., Huddersfield, Yorkshire—Producer.

Wood carvings.

177 HAMILTON, CHARLES FOSTER, 15 Greek Street, Soho—Inventor and Manufacturer.

Specimen of shaving brushes.

178 FORSTER, —, Streatham, Surrey—Producer.

Patent and other fabrics.

179 ROGERS, MARK, Abbey Street, Derby—Manufacturer.

Ornamental bracket, composed of autumnal fruits and flowers, carved in lime-tree.

181 FRINNEY, F. R., 63 Cannon Street, City—Inventor and Manufacturer.

Registered distemper and other brushes for painting and graining purposes.

182 BUSHELL, G., 222 Whitechapel Road—Inventor.

An economical substitute for stained glass, suitable for all kinds of ornamental and transparent devices.

183 GODFREY, W., Romford—Producer.

Ornamental window, and model of a life-boat.

184 HALL, J. S., 308 Regent Street—Manufacturer.

Improved elastic over shoes, with leather soles and plush heels, to prevent slipping.

185 TARBUTT, W., Cranbrook, Kent—Designer and Manufacturer.

Cradle, made of osiers, and ornamented with upwards of a hundred diamonds of the same material. It is put in motion by a weight and springs.

188 HORSEY, JAMES, 5 Sutton Street, Soho Square—Inventor and Manufacturer.

Various articles of India-rubber manufacture, in its original colour, designed to resist the influence of heat and cold, and the action of unctuous matters.

Specimens of the same substance in various colours; in sheet, and in manufactures of different articles, both solid and spread on fabrics. The colours are permanent, and the combination is designed to resist the influence of atmospheric temperature, unctuous matters, and many chemical menstrua.

191 WOODHEAD, J., *Leeds, Yorkshire*—Manufacturer.

Bell ropes; flax web; hempen ropes; worsted netting for protecting fruit trees from frost.

192 GRIFFITHS, WILLIAM, 29 *Griffton Street, Dublin*—
Inventor and Manufacturer.

Elastic snake bracelets, double and single coils, made of bog oak, and with alternate joints of bog oak and yew. Bog oak paper knives, brooches, studs, buttons, pen-holders, watch-chain ornaments. Bog oak brooches illustrating four celebrated ruins in Connaught, Ulster, Munster, and Leinster. Irish harp brooches, with Irish beryl, pearls, and diamonds. Various bracelets and brooches.

193 CAWLEY, J., 21 *Bridgewater Gardens, Bridgewater Square, Barbican, City*—Manufacturer.
Various mats and rugs.

194 CURTIS BROTHERS, 29 *Green Street, Friar Street, Blackfriars Road*—Manufactory.

Gut band, for driving steam-engines, manufactured from animal substances.

195 HEMENS, N. J., *Hayes, near Uxbridge*—Inventor.

A hoof of a horse shod with gutta percha, with an accompanying shoe.

196 HINDE, JOHN GEORGE, 144 *Broad Street, Birmingham*—
Designer and Manufacturer.

Specimens of fancy brushes, showing process of manufacture.

Specimens of various kinds of useful brushes, and models of apparatus for making them.

197 CLARKSON & Co., 111 *Strand*—Manufacturers.
Specimens of patent cork hats.

198 STEVENS, JOHN, 4 *Penton Row, Queen's Row, Walworth*—Producer.

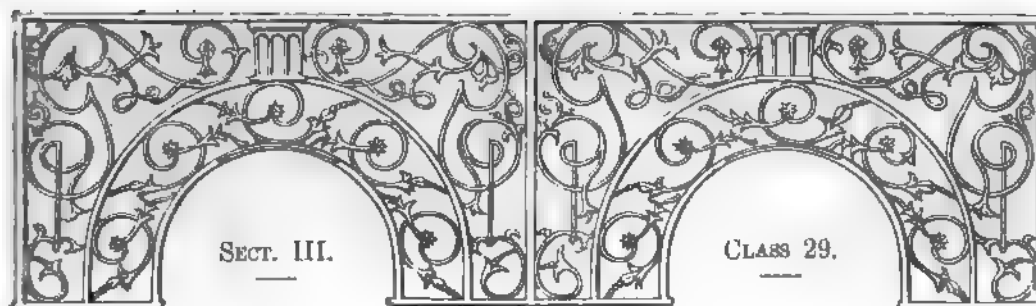
View of the Exhibition in a composition, made at St. John's Wood.

199 DEWENAP, J., *St. Thomas's Street, Sheffield*.
A variety of razor-strops, &c.

200 HAWKINS, THOS., 3 *Inverness Terrace, Bishop Road, Buyscater*—Patentee and Manufacturer.
Specimens of brushes.

201 WATSON, JOSEPH, *Newcastle-upon-Tyne*—
Proprietor.

Vegetable ivory nut; the same prepared for carving; and carvings executed by R. Scott, Newcastle.



MISCELLANEOUS MANUFACTURES AND SMALL WARES.

INTRODUCTION.

THE miscellaneous character of the objects included in this Class renders it difficult to convey a precise idea of its general import, or of the distinguishing features of the articles exhibited under it. Small wares may be taken to comprehend a very large variety of articles, and miscellaneous manufactures necessarily include a similar variety. The following feature may, however, be considered to characterise the articles brought together under this Class, that they are principally, though not exclusively, related to the minor points in the domestic economy of society. And this will be evident on examination of the Sub-Classes into which it is divided.

These are as follow:—A. Perfumery and Soap; B. Articles for personal use, as Writing-desks, Dressing-cases, Work-boxes, when not exhibited in connection with precious metals and travelling gear generally; C. Artificial Flowers; D. Candles, and other means of giving light; E. Confectionery of all kinds; F. Beads and Toys, when not of hardware, Fans, &c.; G. Umbrellas, Parasols, Walking-sticks, &c.; H. Fishing-tackle of all kinds, Archery, &c.; I. Canes of all kinds; J. Other miscellaneous manufactures.

These articles are placed in the North Transept Gallery. Included, however, among the miscellaneous objects are two valuable and important collections which scarcely appear to come under proper recognition in this Class. These collections are of the imports of the towns of Liverpool and Hull. They have been arranged with great care, and present an excellent picture of the staple articles of trade, and of many of the less important ones, constantly received as importations from abroad by these flourishing sea-ports. The list of the Liverpool Collection has been inserted in the body of this Catalogue, in consequence of the value attaching to accurate statistical local information. This list has undergone careful scientific revision, and its generic expressions may be taken as, on the whole, accurate.

The manufacture of soaps and candles is the only one of great commercial importance to which this Class has relation. The employment of soap in many processes of manufacture, in addition to the immense demand created by domestic necessities, render its production on the great scale proportionally interesting. The rate of increase in the quantity produced, during the last half-century, may be estimated from the fact that, in 1801, 52,947,037 lbs. of soap were consumed; and, in 1849, the annual consumption amounted to 197,632,280 lbs. The quantity per head amounted, in the latter year, to 9·71lbs. annually; in the former to 4·84lbs. But much of the increase of consumption is to be attributed to the development of manufactures in which this substance is used for various purposes. It is a remarkable fact that, during the same period, the number of licensed makers of soap has decreased to the extent of one-half, while the production has increased by two-thirds and upwards. Chemical science has applied itself to this manufacture with much success in this country, and the best soap is produced at a rate very inferior to that of indifferent soaps in other countries, and in our own at a former period.

The candle manufacture is also conducted on a very large scale. The introduction of oil, camphine, gas, and other means of giving light, does not appear to have very materially influenced this manufacture. The cause of which may, perhaps, be sought in the repugnance of many to apply gas to household uses, and in the convenience of the use of a solid instead of a fluid material for domestic lights. Chemistry has effected much for this manufacture. By its aid a new material has been produced which has become a most extensive substitute for wax and spermaceti, not only in this but also in foreign countries. Fiscal restrictions having been removed, the improvement in the candle manufacture has been most striking, and the benefit to the public and to commerce proportionate.

The minor articles comprised within the limits of this Class do not require special notice. Perfumery, articles for the dining-table, models in wax, toys, fishing-tackle, &c., have all their respective importance, and may, by those interested in them, be studied in the locality already named.—R. E.

- 1 ROWLAND, ALEXANDER & SONS, 20 Hatton Garden—
Proprietors.

Articles of perfumery and for the toilet; oils, cosmetics, dentifrices, &c.

- 2 YARDLEY & STATHAM, 7 Vine Street, Bloomsbury—
Manufacturers.

Specimens of refined scented soaps.

- 3 RIMMEL, EUGENE, 39 Gerard St., Soho, and
19 Boulevard de la Gare d'Ivry, Paris—Producer.

Artificial hair, to imitate human hair, for plaits, &c.
A scent fountain, a jet for cooling and perfuming apartments, &c.; kept in motion by a descending weight, and wound up like a carrel lamp. Scented winter bouquets, composed of artificial flowers. Various articles of perfumery and for the toilet.

4 WILLIAMS, JOHN, & SON, 28 Compton Street,
Clerkenwell—Manufacturers.

White oil soap, produced from Gallipoli oil, much used amongst the fine cloth manufacturers. Fine curd soap, used at Nottingham amongst the lace-bleachers. Curd soap, used by the cloth and other manufacturers of woollen goods. Scouring soap, principally used at Leicester, also in the manufacture of goods. Mottled and yellow soap, similar to that sold by oilmen and grocers. Various kinds of fancy soaps (perfumed).

5 TAYLOR, HUMPHREY, & Co., King's Road, Chelsea—
Distillers.

Specimens of liqueurs distilled from foreign and English fruits, &c., of a British spirit; of distilled waters, extracted from flowers, herbs, &c.; of fancy scented soaps.

6 LLOYD, ANDREW, 10 Beak Street, Regent Street—
Manufacturer.

The Euxesis, for shaving without soap or water.

8 KNIGHT, JOHN, Old Gravel Lane, St. George's,
Midleser—Manufacturer.

Extra pale yellow soap; exhibited for utility and composition.

Soft soap—used in the manufactures of cloth, silk, &c., formachinery, on railways and on other works, for washing sheep and cattle, &c.

9 WARNER, W., Eastbourne, Sussex.

Models of two casks and a filter.

10 HENDRIE, ROBERT, 12 and 13 Tichborne Street,
Quadrant—Manufacturer.

Toilet soaps.—Petrolino soap, and other fancy soaps.

British perfumes:—a pure lavender water, from British flowers only. Specimens of various perfumed essences. Cosmetic preparations for preserving the skin. Improved milk of roses. Improved spirituous acetine, or toilet vinegar. "Moelline," a peculiar oleaginous compound. Specimens of various articles connected with the toilet.

13 GROSSMITH, JOHN, 39 Friday Street—Manufacturer.

Summer and other fancy soaps; pomade, essences; perfumery, and essential oils.

14 CLARNE, W. R., 27 Compton Street, Clerkenwell—
Producer.

A walking-stick.

15 BARNES, J. & W., Poyle, near Colnbrook—
Manufacturer.

A variety of whiphongs.

16 CARRICK, JAMES, 127 Crawford Street—Inventor
and Proprietor.

Sample of the cosmetic elder-flower toilet soap, free from all stimulating perfumes.

17 GALBRAITH, W. J. T., 26 Bennett Street, Blackfriars
Road—Inventor and Manufacturer.

Writing fluids. Seidlitz powders. Marking ink. Culinary essences. Hair oils, perfumes, &c.

18 EDE & Co., 47 Ludgate Hill—Manufacturers.

Articles of perfumery. Waithman's patent ink.

19 COWAN, LEWIS, & SONS, 139 New Gravel Lane,
Shadwell—Manufacturers.

Specimens of pale yellow, mottled, curd, and marine soap.

20 CLEAVER, FREDERICK SAMUEL, 18 Red Lion Square—
Inventor and Manufacturer.

"Honey toilet soap."

Specimens of "May blossom," or "summer soap," being composed of "cream of tartar" with "honey soap." "Winter soap," (honey soap combined with camphor.) Specimens of "peach-blossom soap," free from colouring matter.

Brown and white Windsor, and white almond soaps.

21 FARINA, JEAN MARIE, 23 Rheinstrasse, Cologne, and
1 Salters' Hall Court, Cannon Street, City—Manufacturer.

A new extract of Eau de Cologne, playing from a fountain.

22 FISHER, T. W. & Co., King's Head Court, Barbican—
Manufacturer and Patentee.

Perfumery and chemicals.

23 STEVENSON, DAVID, 4 Carlton Street, Regent Street—
Manufacturer.

Eau de Cologne. This perfume is manufactured in this country, and contains the peculiar qualities which are supposed to be confined to the foreign article, while it can be sold at a less price.

24 PEARS, ANDREW & FRANCIS, 91 Great Russell Street,
Bloomsbury—Inventors and Manufacturers.

Specimens of transparent soap.

25 KENDALL, JOHN, & Co., 32 Hanover Street, Dublin,
Manufacturers; Agent, KENDALL, JOHN, 8 Hay
Lane, Great Tower Street, London.

Sixty boxes fancy perfumed soaps, assorted. Twelve slabs fancy soaps, of various colours, in rosewood frames, glazed.

Twenty-four bottles of perfumes, assorted; imported by the exhibitors, from the Fabrique, at Aix-la-Chapelle. The soaps manufactured at Hanover-street, Dublin; the boxes and decorations by W. Cornish, 63 Bartholomew Close, London. Manufactured without any deleterious ingredients.

26 FAIERS, JOHN, 154 High Street, Colchester—
Manufacturer.

Vegetable oil for perfumery.

27 WHARRY, JAMES, Market Place, Chippenham—
Manufacturer.

Distilled lavender-water.

28 MACKEAN, WM., Paisley—Manufacturer.

White soap. Pale soap, purified so as to retain its colour. White oil soap, finished by a process in which the glycerine is extracted. Palm-oil bleached without the intervention of chemicals.

Ammoniacal soap (soft). In making this soap, the alkali and fat are united instantaneously by a novel process. The colours of cloth subjected to this soap in washing are generally brightened, the reverse being the case with common soaps.

Purified American baking lard. Lard-oil, for machinery, freed from fat acids.

29 PAYNE, GEORGE, Cowes, Isle of Wight—Proprietor.

Royal Osborne bouquet—an improved perfume. Isle of Wight sand soap—made with the coloured sands of the island. Royal Osborne sauce—an improved condiment.

30 LOW, R., & Co., 330 Strand—Manufacturers.

Hair brushes in ivory, satinwood, and rosewood. Embossed perfumed soaps. Bottles of perfumery.

31 GOULD, A., 36 Great Marylebone Street—
Manufacturer.

An assortment of fishing tackle.

32 WARRELL, JAMES, Dofford Street, Bath—Manufacturer.

Ladies' fancy work-baskets, made from the ground-ash and the hazel-nut, varnished with spirit varnish, and finished with silk and satin.

Large work-basket, fitted up with rose satin, in the shape of a boat. Large oval cover travelling work-basket, varnished brown, crimson lined.

Lady's jewel-casket, Albert blue, with a crochet covering. Bridal basket, light varnish, pink lined, with brass lock.

Long knitting-basket, varnished brown, blue satin lined, with padlock. Long tidy for crochet-needles, varnished dove colour, rose satin lined. Toilet pincushion, varnished pink, covered with white silk.

Lady's travelling refreshment basket. Pen tray, varnished brown, lined with blue. Green canoe, lined yellow, for fruit or flowers. Bronze tidy or key-basket, lined with green. White canoe, showing different sorts of wood. Model for a baby-linen basket.

33 ADAMS, SAMUEL, Nottingham—Inventor.

Instrument, to enable a blind person to thread a needle.

34 FROST, HENRY, 17 Rathbone Place, Oxford Street—Manufacturer.

Specimens of hot-water and steam apparatus.

35 STIVEN, CHARLES, & SONS, Laurencekirk, Scotland—Inventors and Manufacturers.

Tea-chest, with a view of Scone Palace and pattern, Murray tartan. Lady's work box, with a view of Balmoral and pattern. Royal Stuart tartan. Knitting box, with a view of Melrose Abbey and pattern. Hunting Stuart tartan. Cigar-case. Needle book. Postage stamp box. Snuff box, inlaid with various woods; snuff-box, with pattern, Royal Stuart tartan; snuff-boxes of partridge-wood and Amblyna-wood.

36 AUSTIN, GEORGE, 6 & 7 St. Andrew Street, Dublin—Manufacturer.

Dressing cases, made of Irish bog yew, from the county of Kildare. The silver fittings from the Sagenure mines, county of Wicklow. Improved silver fitted dressing-case. Coromandel wood writing desk, the top represents a leopard hunt, and the front a tiger hunt. Coromandel wood regency desk, inlaid with brass, mother-of-pearl, and different coloured shells.

Russia and morocco leather writing boxes, and cases. Morocco leather backgammon boxes, gilt, varied sizes, patterns, and colours. Morocco leather despatch box. Pocket books, brush cases, roll-up dressing cases, &c.

37 BEST, THOS., 9 St. Mary's Lane, Birmingham—Manufacturer.

Gentleman's fancy leather dressing-cases. Russia leather double writing-case. Ladies' fancy leather work reticule and dressing-case combined. Ladies' reticules. Student's companion, note case. Ladies' card-cases; and with tablet, imitation of inlaid tortoise-shell. Gentlemen's card and cigar cases. Ladies' companions. Pocket books, and bill and bankers' cases. Spectacle-cases, fancy leather Writing-desk

38 HAYWOOD, M., Birmingham—Manufacturer.

Fishing tackle, in great variety

39 PURDON, THOMAS, 68 Whitechapel, Hull—Inventor and Manufacturer.

Registered travelling bureau

The Hull safety oil lamp, combining lantern and lamp. The flame is protected by a glass, on the top of which is a wire cage cone, to prevent the action of the air in draughts, &c.

Iron skate, made by Wm. Grantlath, which runs on four small fluted wheels

40 RUSSELL, ROBERT, Tunbridge Wells, Kent—Inventor and Manufacturer.

Tunbridge ware marquetry inlaid lady's work-box, fitted with a till, &c. Made in the Gothic style, and showing native woods.

41 HOLLANDY, HENRY, Tunbridge Wells—Manufacturer

Work-box and writing-desk, specimens of mosaic inlaid Tunbridge ware.

Specimens of English and foreign woods, with which these articles are inlaid.

42 STREDWICK, THOMAS, 14 New Bond Street—Manufacturer.

Yew-tree writing box, fitted with ebony, bronze antique mountings. Cedar of Lebanon dressing-case with silver fittings, hinges, locks, &c. Yew-tree dressing-case with Elizabethan silver fittings and ornaments. Ebony box with mediæval mounts. Ebony library ink-stand, with silver taper-stand and ink-glasses.

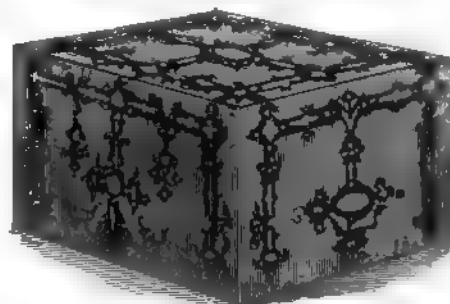
43 STOCKEN, CHARLES, 53 Regent Street—Manufacturer.

Envelope cases, blotting books, &c.

44 LEUCHARS, WILLIAM, 38 Piccadilly—Inventor and Manufacturer.

Lady's dressing-case of walnut-wood, the exterior mounted in the mediæval style, in pierced solid silver, enriched with gilt knobs and pins, and relieved with canal coal; the interior fitted with massive chased silver tops, parcel gilt, and a new-pattern of swing glass in a silver frame.

This dressing case is represented in the annexed cut.



Leuchars' Mediæval Dressing-case.

Gentleman's dressing case, of morocco leather, fitted with silver tops, engraved in a high style of art.

Travelling tea-equipage for two persons, in a morocco case. Morocco leather despatch-box writing-desk, of a new pattern, with a registered lock. Morocco leather *en de voyage*, reticule, and other articles.

45 MICH, J. J., 4 Leadenhall Street—Manufacturer.

Dressing cases, work boxes, writing-desks, tea-chests, and elegancies for presentation.

An ornamental dressing case with handsome gildings and every requisite. This is represented in the cut (p. 793.)

46 HURRELL, W., 60 Hornscliffe—Manufacturer.

Models of English oak vats.

47 HINE, JOSEPH, 5 Skinner Place, Holloway—Designer and Manufacturer.

Cabinet work of ebony, inlaid with various coloured pearls, tortoise-shell, &c. Writing-desk ornamented with various subjects and figures. Inlaid Regency desk. Inlaid work-boxes, with various coloured pearls, tortoise-shell, &c. Bull clock case, top supported by four pearl pillars, &c.

48 DALTON, THOS., 85 Regent Street—Inventor.

Combined writing-desk, dressing-case, and dispatch box. Small dressing case.

49 LUCAS, FRANCIS, 9 St. John's Street Road, Clerkenwell—Manufacturer.

Solid rosewood improved folding wing medicine chest.

50 ASPREY, CHARLES, 166 New Bond Street—Inventor, Designer, and Manufacturer.

Ladies' dressing case, in a specimen of rare wood, surmounted with a new design, descriptive of Neptune's attributes, and a shield in centre, with name "Annie" in ciphers, entwined, the whole executed in chased and gilt mould. Secret compartments for sovereigns, notes, jewellery, &c. The fittings form a complete set in cut

glass, with massive silver tops, each bearing the same name. A set of ivory brushes, for hair, cloth, and velvet, and a pearl-mounted shoe-lift, poll and mouth glass, all bearing the same name in relief. The cutlery and other instruments, in white cornelian handles, mounted in gold, with the turquoise, &c., representing the "Forget-me-not;" and the linings of silk velvet. This dressing-case, with the inkstand and the ebony casket named below, are represented in Plate 17, p. 730.

Writing desk in tortoiseshell buhl, worked in an original design, emblematical of falconry; the interior arranged with various conveniences, and lined with sandal wood. Blotting-book, in silk velvet, with silk linings, surmounted with a new design, chased and gilt, in bold relief.

Casket, of new design, in gilt ormolu, and chased, having four allegorical figures representing Europe, Asia, Africa, and America, with a rare specimen of blood-stone, *en suite* with the blotting-book.

Stand, in chased ormolu, surmounted with ink-glass in artistic vase, with two figures blowing horns, forming a pen-rest and mounting a companion blood-stone, *en suite* with the preceding. Represented in Plate 17, page 730.

Ebony casket, of unique design, arranged with serpents upholding a choice collection of antique corals; the feet, handles, key, &c., being intricately worked out. Represented in Plate 17, page 730.

Jewel casket or cabinet, finished in or-molu, set with malachite, arranged with drawers and folding doors, pierced and chased in relief. This jewel cabinet is represented in the annexed cut (p. 793).

Casket envelope case, in chased work, gilt, ornamented with malachites, in pierced engraved mounts.

Blotting-book designed and mounted *en suite*. Inkstand and card and pen trays, designed and mounted *en suite*. Tazza candlesticks and taperstand, *en suite*.

Indicator, with rotary motion, showing the month, the days of the week, and dates at one view, designed, and mounted *en suite*.

Match box, designed and finished *en suite*. Ebony envelope box, conveniently arranged and surmounted with a new design, in flat, chased, and pierced work, gilt. Blotting-book, mounted and finished *en suite*. Writing-case, in red Russia leather, with inlaid handle and patent lock, engraved and gilt, with secret drawers, &c.

Plain morocco case, or carriage bucket, combining a dressing case, with silver fittings, gilt inside, looking-glass, cutlery, &c., a writing-case fitted with stationery, blotting-book, pen and paper knife, penholder, pencil, paper, scissors, &c., a box with sandwich case, liqueur bottle and wine glass, knife, fork, spoon, &c., a brush-case, with set of brushes and combs complete, a jewel-case completely arranged, secret drawer for cash, account book, and journal, an ink-box with patent ink and light, trays, &c., arrangements for needlework, netting, and crochet, sketch book and pencils.

51 **JOHNS, GEORGE E.**, 3 Aldermanbury—Designer and Manufacturer.

Toilet box, and octagonal-shaped work-box, of English design, materials, and workmanship; manufactured of paper and embroidered satin.

52 **TURBILL, JOHN**, 52 New Bond Street—Manufacturer.

Portable writing-desk and receptacle for private papers and money.

53 **STURGEON, HARRIETT**, 180 High Holborn—Producer.

Vase of flowers, made from feathers, by an amateur.

54 **CLIVE, J. H.**, Tunstall, Staffordshire—Producer.

A ballestina and chest expander.

55 **LANGDALE, EDWARD F.**, 83 Upper Thames Street, and 52 Frith Street, Soho—Manufacturer.

Specimens of perfumes—extracts of millefleurs, violets, mignonette, patchouly, cassia, heliotrope, jasmin, fleur d'orange, and lavender. Samples of "essential oil of

brandy," "oil of pears," and "oil of pine apple," for distillation, flavouring confectionery, and summer beverages.

56 **DOWN, JOHN**, Moat Row, Birmingham—Designer and Manufacturer.

Wax fruit. Table of original design and manufacture.

57 **STIRLING, C. M.**, Kippencross, Dunblane, Scotland—Designer.

Impressions of single leaves by means of lamp-black and oil, representing, on a large scale, the peculiar growths of forest trees.

58 **ARTHUR, MARY S.**, Glasgow—Producer.

Vase of artificial flowers.

59 **JACKSON, ELIZABETH**, East Bank Street, Southport—Inventor and Producer.

Delicate vase of artificial flowers; the sole invention and work of the exhibitor, a fisherman's wife.

60 **PERRY, J.**, 1 and 2 Victoria Place, Ramsgate—Producer.

Vase of shell flowers.

61 **TEMPLE, EMILY**, 46 Connaught Terrace—Producer.

Wax flowers and foliage modelled from nature.

62 **SUGDEN, BORRAS, & Co.**, 12 Aldermanbury—Manufacturers.

Artificial flowers. Feathers for ladies' bonnets, and head-dresses of British manufacture.

63 **STRICKLAND, MARIA**, 8 New Bond Street—Manufacturer.

The "Victoria Regia," in its various stages of development, with each side of leaf modelled to nature. Roses, all copies from nature. Opal vase, filled with various flowers. Cut glass vase, with flowers. Model of the night-blowing Cereus and other Cacti. Variety of orchidaceous plants, &c.

[The *Victoria regia* is a water-lily of extraordinary beauty, inhabiting the still rivers of tropical America, where its seeds are eaten like maize. It first produced its flowers at Chatsworth, in 1849. They occupy two days in fully unfolding, and are deliciously fragrant. The leaves are so buoyant as to be capable of bearing the weight of a full-grown man and boy when standing on them.—J. L.]

64 **SLAUGHAN, ELIZABETH**, 37 Gloucester Terrace, Cannon Street Road—Producer.

Round shade filled with roses, imitated in wax, in an alabaster vase, entwined with wild and bower roses.

Four shades, with national motto in Forget-me-nots and rose-buds, modelled in wax; intended to be placed round the large shade of roses.

65 **RIDDIFORD, JANE**, 14 Conley Street, Westminster—Designer and Manufacturer.

Group of hand-cut rice-paper flowers.

66 **RANDOLPH, WILHELMINA**, 55 Marsham Street, Westminster—Producer.

Specimens of plants and cut flowers, copied from nature; prepared with feathers of various hues, without dye or tinting; by an amateur.

67 **PURSEY, W. H.**, 14 Spring Street, Sussex Gardens, Paddington—Producer.

Imitations of flowers, cut in vegetables, and chemically preserved, for garnish.

68 **COX, JOHN**, Georgie Mills, Edinburgh—Manufacturer.

Samples of refined sparkling gelatine of various kinds, and glue.

Pair of safety swimming stockings, and safety swimming swan; to assist persons in escaping from shipwreck.



Meehl's Ornamental Dressing case.

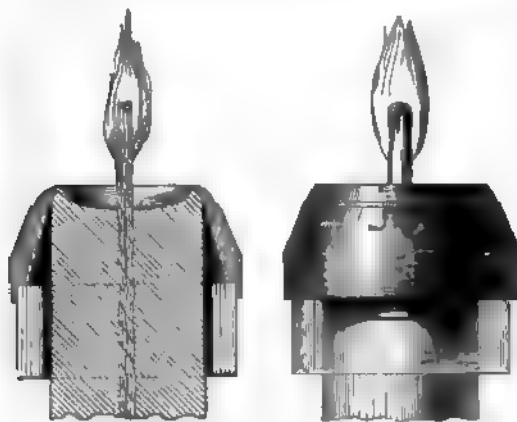


Asprey's Or-molu Jewel Cabinet.

- 69 BURCH & SON, 32 *Platt Terrace, St. Pancras*—
Manufacturers.
An assortment of lead pencils.
- 70 MINTORN, JOHN H. HORATIO, ELIZABETH, and
REBECCA, 36 *Soho Square*—Designers and Manu-
facturers.
Flowers modelled in wax, showing their applicability
as ornaments for the drawing-room, &c.
Rare and curious botanical specimens modelled in wax
from life, showing their growing state, and exhibiting
the varieties and phases of their existence.
- 71 MAGUIRE, WM. JOHN, 5 *Chenies Street, Bedford
Square*—Manufacturer.
Flowers made from dyed feathers, used for decoration.
- 72 HOSKINGS, ANN, 7 *Langthorn Place, Stratford*
—Manufacturer.
Basket of wax fruit. Dishes of wax pastry and vege-
tables.
- 73 GATTI, AUGUSTINE & GASPARO, 28 *Bridge Road,
Lambeth*; and 20 *Coppice Row, Clerkenwell*—
Designers and Manufacturers.
Artificial cluster of sweet peas, made from white
muslin and velvet, each piece shaded separately.
Flowers made of paper, and preparations for the same.
Patterns of articles used in making artificial flowers
of British manufacture, comprising every colour and de-
scription of material, and showing the same both before
and after being made up into flowers.
- 74 FOSTER, SON, & DUNCUM, 16 *Wymore Street*—
Manufacturers.
Various specimens of the principal articles used in the
manufacture of artificial flowers. Specimens of artificial
flowers, in the different stages illustrative of the manufac-
ture; in vases; and arranged as ornaments for the head
dress, &c. Specimens of ostrich feathers. Muff and
tippet, manufactured from the paddy or marabout feather.
- 75 EWART, HENRIETTA, *Bath Place, New Road, and
Amphill Square, Hampstead Road*—Manufacturer.
Vases of wax flowers and plants.
- 76 POPE, W., *Bridge Street, Exeter*—Manufacturer.
Various specimens of felt, &c.
- 77 DORVELL, ELIZABETH, 199 *Oxford Street*—
Inventor.
Wax flowers for ornaments, exhibited for tinting and
modelling.
- 78 CHISHOLME, EMMA, 29 *Edward Street,
Hampstead Road*—Manufacturer.
Specimens of wax flowers.
- 79 LEMARE, JANE CLARA, 11 *Cocley Terrace,
North Brixton*—Manufacturer.
Sheets of wax for modelling flowers. The raw mate-
rial, in three different stages. Also, a small group of
flowers, showing the application of the waxen sheets.
- 80 FISHER, JOSEPH, 3 *Cripplegate Buildings*—
Manufacturer.
Hawthorn or May-tree, and other British manufactured
artificial flowers.
- 81 HARDING & STANDFAST, 83 *Hatton Garden*—
Inventors.
Bonnet made of feathers, uniting warmth and light-
ness, and being at the same time porous and waterproof.
Artificial flowers of English manufacture.
- 82 JONES, ISABELLA B., 22 *St. George's Road,
Notting Hill*—Modeller.
Group of wax flowers, from nature.
- 83 CALLOW & SON, *Park Lane*—Manufacturers.
A variety of gig whips.
- 84 SKILL, REBECCA, 79 *Wurwick Street, Piccadilly*—
Inventor and Manufacturer.
Specimens of wax flowers. These are composed of che-
mical substances, resisting rough treatment, and enduring
for a length of time. Basket of flowers; vase containing
a bouquet; and a glass dish with water and plant. Spe-
cimens of the materials employed.
Three rustic ornaments in gutta percha.
- 85 MIERS, W. J., 15 *Lamb's Conduit Passage, Red Lion
Square*—Manufacturers.
Specimens of ornamental letters.
- 86 FIELDER, WM. E., 10 *Upper Portland Place,
Wandsworth Road*—Maker.
Group of wax flowers.
- 87 HOOL, MARY—Producer.
Flowers made of feathers.
- 87A GOING, J., & Co., *Clonmel, Ireland*—Manufacturers.
Pale yellow and white soap, exhibited for quality.
- 88 STANTON, MARY, 19 *Noel Street, Islington*—
Manufacturer.
Wax flowers, in vases.
- 89 EDWARDS, THOMAS JEVES, 21 *King Street, Holborn*—
Manufacturer.
Various dressing cases.
- 90 BRIEN, C., *Dublin*—Manufacturer.
Clarified tallow candles.
- 91 DIXON, GEORGE, 1 & 2 *Upper Erne Street, Dublin*—
Manufacturer.
Improved composite candles. Improved mould (tallow)
candles, with waxed wicks. Household soap.
- 92 MORRELL, JOSEPH, *Darlington High Row, Durham*—
Inventor and Manufacturer.
Marbled tallow candles, which burn without snuffing,
and emit an agreeable perfume during combustion.
- 93 GALTON, MARY ANN, 56 *Upper Charlotte Street,
Fitzroy Square, and 26 Hercules Street, Pentonville*—
Designer and Manufacturer.
Sofrano standard rose-tree, mignonette. Modelled in
wax.
- 94 MITCHELL, GRAHAM ALEXANDER, *Whitburn,
Lindithgoreshire*—Producer and Inventor.
Samples of vinegar, with a specimen of the plant which
produces it.
Specimens of mineral candles.
Specimens of a chemical composition for preserving
houses from damp.
- 95 JONES, W. HENRY, REV., M.A., *Queen's College, Oxford,
and Chailly, near Leves, Sussex*—Inventor and
Patentee.
The acolyte; or patent safety candle-cap. The use of
this instrument with lighted candles, while increasing
the light and lessening the consumption, serves to pre-
vent the waste and discomfort occasioned by their
swaling or guttering, and overflowing, in draughts or
motion. The acolyte is also available for carrying a
shade.
The invention consists in the combination of a "cap"
of metal (as a heat-conducting substance) regulating the
supply to the wick, with a "guide" of glass (as a non-
conductor of heat) maintaining its perpendicularity with-
out communicating heat so as to melt the lower part of
the candle; as exhibited in the cuts on the next page, in
elevation and section.

In the commoner descriptions, suitable for dipped candles, a lining of plaster of Paris is substituted for the glass.

The acolyte thus formed, placed on a lighted candle, descends by its own weight as the candle burns, and may be used with the last remnant of a candle by the aid of a wave-all of suitable size for it to pass over.



Jones's Patent Acolyte.

- 96 KIRBY, BEARD, & Co., *Dépot, Cannon Street, City*—Manufacturers.

Pins, the head and shaft being all of one piece. Manufactured at Gloucester.

Needles; having pierced eyes; and fish hooks, suited for home or abroad, for river or sea fishing. Manufactured at Creden, Buckinghamshire.

- 97 SANDELL, E., *Patney*. Inventor and Manufacturer.

Odoriferous lighters, for igniting tapers, lamps, &c., and refreshing the atmosphere of sick-chambers, nurseries, smoking rooms, &c.

- 98 LEWIS, Miss, *Walthamston, Essex*.

Paper-cuttings executed with scissors

- 99 HALE, W. S., *73 Queen Street*—Manufacturer.

Specimen of stearic acid, and of the tallow from which it is made. Candles, manufactured from stearic acid, hard, and not affected by the heat of any climate. Composite candles, made from stearic acid of tallow and cocoa-nut oil. Boxes of night lights.

[Upwards of two million five hundred thousand pounds of tallow are annually imported into Great Britain from Russia alone, which are devoted to the manufacture of soap and candles. Tallow candles, together with the more costly articles, wax and spermaceti candles, have been to a large extent re-placed by stearine candles. To M. Gay Lussac is due the credit of the application of philosophic chemistry in this instance to the humbler affairs of life. Stearine is prepared by repurifying tallow by means of lime, and then acting on the compound with dilute sulphuric acid. It is then compressed by hydraulic force, which expels the oily constituents of the tallow, and leaves behind a hard semi-crystalline substance, this is fused and run into moulds, and is then fit for use in the candle manufacture. A peculiar kind of wick is commonly used in candles made of this substance, and they do not require snuffing. Arsenious acid was formerly, and may possibly still be, introduced into stearine candles, with a view of promoting their solidification.—R. E.]

- 100 ROGERS & Co., *137 Strand*.
Baby-jumper.

- 101 BELL, R., *16 Basing Lane*—Manufacturer.
Samples of improved fuses.

- 102 GOWER, T., *Gun Lane, St. Stephen's, Norwich*
Inventor and Manufacturer.
Lemonade, prepared from vegetable substances.

- 103 GRAHAM, LEMON, & Co., *Producers*.
Specimens of the process of the manufacture of lozenges and comfits, from the raw material to the finished state.
Samples of confectionery. Samples of plain, fancy double strong, and medicated lozenges, &c.

- 104 BOLAND, PATRICK, *138 Capel Street, Dublin*—Manufacturer.
Various sorts of biscuits and cakes.

- 105 THWAITES, A. & R., & Co., *57 Upper Sackville Street, Dublin; and St. Alban's Place, Haymarket*—Inventors and Manufacturers.
Soda water—"single," and "double." Introduced in 1800, by the late Robert Perceval, Esq., M.D., Professor of Chemistry in the University of Dublin.

- 106 WOTHERSPON, JAMES, & Co., *Glasgow*—Manufacturers.
Peppermint, lemon, rose, musk, lavender, ginger, and cayenne lozenges; comfits, almonds, carraways, and Scotch mixtures, made by patent machinery driven by steam power.

- 107 HUNTLEY & PALMER, *King's Road, Reading*—Manufacturers.
Various fancy biscuits, made by steam machinery; the biscuits being mixed, rolled, cut out, and conveyed to the ovens without kneading the dough, as in the ordinary way.

- 108 LEALE & ALBRECHT, *4 Lichfield Street, Soho*—Designers and Manufacturers.
Confectioners' cake moulds, in three parts, each formed from a single sheet of copper. Cake and jelly moulds of different designs. Jelly mould, designed and registered by Messrs. McManus, Temple, and Reynolds.

- 109 BERR, WM. GORDON, *20 Market Street, Edinburgh*—Inventor and Manufacturer.
Samples of lozenges and other confections, &c.

- 110 WILKIN, A., *6 Little Winchester Street, London Wall*.
Savoy cake ornamented with sugar.

- 110A LUCAS, G. —Manufacturer.
Lozenges and other comfits.

- 111 TIDMARSH, R., *3 Jamaica Row, Bermondsey*—Inventor and Manufacturer.
Aromatic cachous, a small silvered pill or comfit, for producing an agreeable warmth and flavour.
Aromatic pastilles, for smoking.
Fumigating pastilles.

- 112 GUNTER, RICHARD, *Molcomb Street, and Lozenges Street, Fenchurch Square*—Manufacturer.
Specimens of bride-cakes.

- 113 HUBBARD, H. B., *Baker Street, Enfield*—Manufacturer.
Gingerbread nuts and gingerbread, said to keep for years.

- 114 SCHOOLING, HENRY, *7 North Side, Bethnal Green*—Manufacturer.
Jugubes, of various flavours, and crystallized. Pastilles; mixed and ornamental confectionery. Chocolate sticks, drops, and cakes. Gelatine for printing, wrapping, and various other purposes.

- 115 **WARRICK BROTHERS, 3 Garlick Hill—**
Manufacturers.
Jujubes, lozenges, and other confectionery.
- 116 **VINE, RICHARD, 10 King Street, Borough—**
Designer and Manufacturer.
A bride-cake, ornamented with sugar icing by piping.
- 117 **BURTON, H., Ilampstead—**Producer.
British insects, preserved.
- 118 **RICHARDS, R., 21 Tonbridge Place, New Road—**
Manufacturer.
Various fishing nets.
- 119 **KEOGH, HENRY, 22 Gilbert Street, Grosvenor Square—**
Designer and Manufacturer.
Composition set of dessert ornaments of eight pieces, in white and gold. Composition centre table ornaments in white and gold.
- 120 **FARRELL, RICHARD H., 35 Lambs' Conduit Street—**
Designer and Manufacturer.
Table ornaments for confectioners in plaster of Paris, gilt. Locomotive engine in wax. Church in wax, on a rock. Palm tree and elephant, on a rock, and giraffes, in grained sugar.
- 121 **SPRATT, ISAAC, 1 Brook Street, Hanover Square—**
Proprietor.
The game of "cockamaroo," improved. Model hay-cart.
- 122 **MONTANARI, AUGUSTA, 29 Upper Charlotte Street, Fitzroy Square—**Manufacturer.
Model wax dolls, the hair being inserted into the head, eyelashes, and eyebrows, and varying in size, &c.
- 123 **LASCELLES, J. W., Liverpool—**Producer.
Model of Mansion-house. Flies for fishing.
- 124 **BOUCHET, A., 74 Baker Street, Portman Square—**
Producer.
Animated and musical tableau, representing the Great Exhibition and people of all nations. Panoptic polyrama. Evening games. Knight in armour, complete, with horse caparisoned. Armorial trophies and Saracen armour. Balloon. Various mechanical toys. Dolls and shops.
- 125 **BLACKMORE, MARY, 1 Rossmore's Buildings, Islington Green—**Inventor and Manufacturer.
Artificial flower-plant, formed of beads strung on wire; intended as an ornament for the drawing-room.
- 126 **SPURIN, E. C., 37 New Bond Street—**Designer.
Mechanical toy model of an English farm, with figures, threshing-machine, windmill, &c., in action.
"Gulliver in Lilliput." Modelled by A. Fleishmann, of Sonneberg, near Coburg.
- 127 **LUCAS, HENRY, 8 Broad Court, Long Acre—**
Manufacturer.
Progressive garden rocking-horse.
- 128 **DEAR, JOHN COX, 191 Bishopsgate Without—**
Manufacturer.
Rocking-horse of wood, carved and shaped, with leather trappings and saddle to shift for boy or girl. Walking-sticks, carved.
- 129 **SHORT, J., Wallington, Surrey—**Manufacturer.
Essential oils of peppermint and lavender.
- 130 **BEANEY, THOMAS, St. Leonard-on-Sea—**
Manufacturer.
Assortment of arrows, inlaid by machinery, with foreign woods of various colours.
A kilee, or boomerang, similar to that used by the natives of Australia.
[The boomerang, or woomerang, is a weapon of offence, used by the aboriginal Australian. It is thrown from

the hand, not at the object intended to be struck, but into the air with a revolving motion, to a height of 60 or 80 feet, from which it descends upon the object to which it had been directed with the force of a falling body, which is generally, in the case of this weapon, sufficient to disable, if not to kill, whilst it is exceedingly difficult to watch its course and avoid the blow.—W. H.]
Registered duplex iron rest for a turning lathe, on a new principle.

- 131 **HOLLAND, HENRY, Darwin Street, Birmingham—**
Inventor and Manufacturer.
Umbrella frame; Holland's patent perlevis, expanded; weight, when covered, 9 ounces. This frame shows the action under the pressure of wind. The perlevis ribs, showing their elasticity; card, showing processes of manufacture; parasol perlevis frames.
- 132 **STEARNS, S., Briggate, Leeds—**Manufacturer.
The "Princess Royal" parasol.
- 133 **WILSON & MATHESON, Candleriggs Street, Glasgow—**
Manufacturers.
New portable umbrellas, which can be folded up and put into a small bag, and the handle used as a walking-stick.
- 134 **WADDINGTON & SONS, 1 Coleman Street—**
Manufacturers.
Patent perlevis parasols and umbrellas.
- 135 **SLARK, WILLIAM, 67 Burlington Arcade—**
Manufacturer.
Improved umbrellas. Lady's parasol driving whip, made of ground rattan, very elastic; life-preservers, whips, &c. Lady's riding-whip made of India-rubber, mounted with gold and turquoise. Penang sword-cane. Steel foil covered with leather, forming a weapon of defence. Improved spare driving whip thongs. Ladies' and gentlemen's riding whips of improved mountings, sorted. Railway calls and dog whips.
- 136 **SANGSTER, WM. & JOHN, 140 Regent Street—**
Manufacturers and Patentees.
New patent parasol, so constructed that it can be closed by a slight pressure of the finger. The application of feathers as an ornament to parasols. Parasols covered with rich embroidered satins and guipure lace, carved ivory handles inlaid with gold and enamelled. Specimens of alpaca as applied to parasols and umbrellas—a new material, said to be more durable than silk. Holland's patent light silk umbrella.
- 137 **RUTTER, JOHN & WILLIAM, 122 Cheapside—**
Manufacturers.
Brown walking parasol. Brown glacé silk parasol, with jointed handle. Satin registered parasol; and a variety of others with ivory handles.
- 138 **MITCHELL, J., Stonehaven, Scotland—**Producer.
A variety of small wares.
- 139 **OGLEBY, CHAS., & Co., Paradise Street, Lambeth—**
Manufacturer.
Refined spermaceti in block, moulded in ornamental form. Stearo-margaric acid in block, similarly moulded. Candles manufactured from these articles.
- 140 **MEYERS, BARNETT, 18 Crutched Friars—**
Inventor and Manufacturer.
Specimens of ash, oak, blackthorn, crab, maple, cherry box, and of English oak, in their natural state. The same manufactured into walking sticks.
Ratans, imported from India, as from Calcutta, Singapore, Penang, Batavia. The same manufactured into umbrella and parasol cane ribs for milliners' use, cap-makers, whip and chair-makers, and brush-makers. A basket made of cane. A chair made of cane.

Carolina reeds from America; also reeds from Spain, &c. Canes from China, viz., white bamboos, black bamboos, whangees, doghead canes, fluted bamboos, jumbies; from Singapore, viz., small ground rattans, large ground rattans, malacca and dragons. Mottled bamboo fishing-rods, and jungle bamboo from Calcutta. Canes from Manilla.

Sticks from the British West Indies, viz., suple jacks, pimentas, cabbage plants, orange, lemon, coffee, Indian briers. A case of mounted canes in ivory, silver, gold, horn, &c.

A chimney-sweeping machine, made of malacca canes. Hunting whips, made of malacca and other canes.

A specimen of English wattled crab, carved very curiously. Sword sticks and canes. Dart sticks and canes. Protectors. Portable stools. Registered mitred hook canes. Spring guard sword-sticks.

[Ratans and bamboo canes are the products of very different kinds of plants; the former being stems of species of palms, the latter of gigantic grasses. Both are furnished from tropical Asia. Ratans, dragons, and Penang lawers are stems of various species of *Calamus*, climbing palms which hang from tree to tree like ropes, in the dense forests of the tropics, and bear beautiful pinnated leaves. Bamboos and whangees are the stems of various species of *Bambusa*, enormous arborescent grasses that grow to a height of from 50 to 60 feet. The joints of these stems are exactly of the nature of the knots on the stalks of European grasses. Reeds are also from grasses, especially the *Arundo donax* (Spanish reed). Pimentos are the wood of *Eugenia pimento*, the Jamaica pepper tree.—E. F.]

141 LEWIS & ALLENBY, 193, 195, and 197 Regent Street—Designers and Proprietors.

Parasol of novel construction, invented by J. Owen, and registered: its advantages are lightness and elegance (twelve very fine ribs, with stretchers proportionately small, being used, instead of the old number of eight of the usual thickness), and the new application of a pinked lining.

Parasol, exhibiting the application of coverings of Irish guipure lace, made at Clones, under the superintendence of Mrs. Hand.

Brocaded ribbons, designed by A. J. Lewis, manufactured at Coventry.

142 LINTON, W., *Belac*—Producer.
An assortment of fishing tackle.

143 CARPENTER, JOHN, 59 Church Street, Old Kent Road—Producer.

Walking-sticks, cut out of branches of trees of various descriptions and of natural growth, carved and engraved by an aged gardener, his tools being his pruning knife and a file for finishing off.

144 PORTER, W., *Northampton*—Producer.
Rocking boat.

145 PRESTON, RICHARD, 37 Highbury Vale, Islington—Manufacturer.

Walking-stick, manufactured from root of hornbeam (the *Carpinus betulus*, an amentaceous tree.)

146 BOSS, ISAAC ABRAHAM, 6 Bury Street—Inventor, Patentee, and Manufacturer.

A new patent parasol. By means of a new arrangement it is opened or shut in an easy manner.

Travelling umbrella, with connected folding handle, for the convenience of packing in a portmanteau. Skeleton frame, uncovered. Stiletto and frame.

Flush inlaid spring umbrella frame, with novel fastening of ribs, stretchers, open cap, &c., avoiding rivets.

Skeleton frame of the patent parasol, intended to exhibit the application of its principles of construction to various designs.

All made in metallic ribs, German silver, and other tubing.

147 HARGRAVE, HARRISON, & Co., 13 Wood Street, *Cheapside*—Inventors and Manufacturers.

Registered cycloidal parasols; the projecting points of other parasols are avoided: an increased shade is afforded with a smaller and lighter frame-work.

148 EVANS, T., & Co., 10 Wood Street, *Cheapside*—Manufacturers.
Specimens of parasols.

149 FOSTER, PORTER, & Co., 47 Wood Street, *Cheapside*—Manufacturers.
Specimens of parasols.

150 MUIR, PETER, *Archer's Hall, Edinburgh*—Manufacturer.

Specimens of bows, arrows, &c., manufactured of Italian yew, English and Irish bog yew, Scotch yew, snakewood, palm, fustic washaba, lance, and Canadian elm.

151 HORE, WALTER, *Harperstown, Tughmon, County Wexford, Ireland*—Inventor.
Trigger to a long bow, larger than the lock of a pistol.

152 PARKINS, T., *Carlisle*—Manufacturer.
Fish-hooks, artificial flies, minnows, &c.

153 ROWELL, J., *Carlisle*—Manufacturer.

A four-joint fishing-rod, with hollow butt, two tops, and appendages for trout-fishing: with specimens of raw materials for making. Fish-hooks in the various stages of manufacture, from the raw material. Artificial flies for salmon and trout fishing. A variety of tackle for angling, with the minnow and other baits, for trout and pike, or jack.

154 NICHOLAS, MARTHA, 58 Castle Street, *Carlisle*—Inventor and Manufacturer.

Case of artificial flies and baits used in angling. Exhibited for superiority of workmanship, and near resemblance to nature.

155 THE NORTHUMBERLAND PATENT TWINE, ROPE, and NET COMPANY, *Newcastle-upon-Tyne*—Manufacturers.

Samples of herring, trout, and mackerel nets, braided or meshed by machinery; of twines, made and spun by machinery; of fishing strings and lines; and of rope, spun-yarn, marline, &c.

[The following Statistics of the Herring and Cod Fisheries are drawn up by Mr. John Millers, General Inspector of Fisheries in Scotland, and communicated by Captain Washington, R.N., F.R.S. The official Report of the Herring and Cod Fisheries on the coasts of Great Britain, for the year 1849, affords the following statistics, which may serve to show the importance of this branch of national industry.

Number of vessels and boats employed	14,692
Tonnage	214,858
Number of men and boys in the boats	59,792
Number of persons employed curing, packing, exporting, &c.	46,254
Grand total to whom the fishery gives employment	106,046

Wages of men vary from 12s. to 15s. a week. Value of a first-class open boat complete, 100l.; with 25 nets complete, 100l.; set of lines, 23l.: total 223l.

The capital embarked in the fisheries is as follows:—

Value of boats, nets, and lines employed	£. 1,189,090
Capital embarked equal to one year's produce	2,191,325
Capital invested on shore in curing places, &c.	2,191,325
Value of 81,791 tons of shipping, at 9 <i>l.</i> per ton, employed in carrying	736,119
Grand total invested	6,307,859

Except in short spaces the herring fishery is prosecuted around the whole coasts of England and Scotland. The length of the season varies, but may be considered from the middle of May to the beginning of March.

The produce of the herring fishery in 1849 was, in barrels	1,151,979
The produce of the cod fishery was	381,778
Total produce in barrels	1,533,757

Computed weight, allowing seven barrels to the ton, 219,108 tons.

Local consumption and home market dispose of 1,093,501 barrels.

Foreign consumption, 440,356 barrels.

Price of cured fish 20*s.* a barrel, chiefly consumed by the poor.

Estimated average value of the fish caught, 2,191,325*l.*

Largest number of fish taken at one haul, 120 barrels.

A single boat in one season has caught 1,000 barrels, and nightly spreads nets to the extent of 21,000 square yards. A crew of eight men in the cod fishery use 7,680 yards of line with 8,400 hooks.

The quantity of netting set each night (for five nights each week) and hauled every morning was 94,916,584 square yards, equal to 19,640 acres, or to 36 square miles. These nets when set extend over a space of about 6,000 lineal miles, and are, therefore, from seven to nine yards deep in the sea. The boats daily traverse about ten times the above space in proceeding to the fishing ground, setting and hauling the nets, and then returning to port. Thus in one week the distance sailed by the British herring and cod boats exceed 300,000 miles.

The length of fishing-lines and buoy-ropes daily used is 36,313,706 yards, or 20,632 miles, which would nearly reach round the globe.

In the district of Wick, Caithness, the netting daily set and hauled by 800 boats would extend in a straight line to about 590 miles, or would reach from Caithness to the island of Heligoland. Yet on this coast, for 12 miles in extent, there are only three small tidal harbours, in accessible at low water or with an easterly gale, and distant 50 miles from a safe anchorage, while the value of the boats and nets at sea every night for three months in the year is 150,000*l.*, no part of which is insured, and all the property of poor fishermen, the greater part of whom are not even members of the Shipwrecked Fishermen's Benevolent Society. It would be a public benefit were the Mercantile Marine Act extended to fishermen as well as seamen, for as a class there are none more exposed, none undergo greater hardships, none more improvident, and none more thoughtless of the future.]

156 FLYNN, W., Worcester—Inventor.
Flexible baits, for salmon, trout, &c.

157 ALLIES, FREDERICK, Worcester—Inventor and Manufacturer.

Artificial baits—Archimedean minnow, variously leaded and mounted, viz.: gudgeon size, pike; small gudgeon size, salmon and pike; large trout and salmon size; and small trout size. Also, pectoral fin minnow, variously leaded and mounted, viz.: gudgeon size, pike, small gudgeon size, salmon and pike; large trout and salmon size; and small trout size.

158 DAVIDSON, G. & W., 17 Quay, Aberdeen—Manufacturers.

Model of Aberdeen salmon bag-net, used for catching salmon in the sea.

159 KELLY & SON, 56 Lower Sackville Street, Dublin—Manufacturer.

Fishing tackle; artificial flies, &c.

160 BANIM, MICHAEL, Kilkenny, Ireland—Inventor and Manufacturer.

Amateur fly-angler's cabinet, made of Irish bog-yew, containing materials, methodically arranged, for making imitations of aquatic insects; accompanied by an essay on the characteristics of fresh water ephemera, exemplified by specimens of the manufactured fly.

161 DENNIS, Rev. J. B. P., Bury St. Edmunds—Producer.

Stuffed birds.—Peacock, with train spread, copied from nature, small gull, showing a method of giving a natural lustre to the eye and eyelids, and restoring the rosy tint of the underneath plumage.

162 M'NAIR, J., Tilticoultry, Alloa, Scotland—Manufacturer.

Fishing-rods, exhibited for superiority of execution.

163 PULMAN, G. P. R., Crewkerne—Manufacturer.

Artificial-flies, for river fishing.

164 NICHOLLS, WILLIAM, Chippenham—Producer.

Fluid extract of annatto, &c.

[Annatto is prepared from the seeds of the *Bixa orellana*. It is used as a colouring substance.—E. F.]

Samples of Beaufort Hunt sauce.

165 MORLEY, JOHN, Nottingham—Producer.

New artificial flies, intended, when in use in the water, to preserve their form. Solid plated taper hair lines, made of hair and silk. Fishing-tackle of various kinds.

166 HARDING, G. P., 83 Hatton Garden—Manufacturer.

Cases of feather bonnets of novel manufacture, uniting lightness with warmth and porousness, in every variety of colour.

167 REMMIE, Misses, 20 New Ormond Street, Bloomsbury—Designers and Manufacturers.

Three ornaments for table or cabinet, bride-cake ornament; regal chair, formed from a portion of a turtle bone, and basket in imitation of Dresden china. All in composition of gum.

168 HARMER, H. R., Great Yarmouth—Producer.

Net for keeping fish alive when angling or trolling from a boat or bank.

169 HARVEY, H., King's Head Court, Barbican—Producer.

Samples of sauce.

170 DANIEL, T., Burslem, Staffordshire—Producer.

Subjects cut in paper, by Mrs. Thomas Daniel.

171 GOULD, ALFRED, 36 St. Marylebone Street—Manufacturer.

Fishing rods and tackle on improved principles.

172 USTONSON & PETERS, 48 Bell Yard, Temple Bar—
Inventors.

Bamboo cane fly and salmon fishing-rod. Each joint is formed of three triangular parts, connected together from end to end. Box of artificial angling baits, including rare specimens of flies and insects, silkworm gut, taper fly line, &c.

173 PEARCE, T. B.—Manufacturer.

Specimens of fishing tackle.

174 LITTLE, GILES, & Co., 15 Fetter Lane, Fleet Street—
Inventors and Makers.

Superior fly rod, ornamented in silver; relieved with gold, with various improvements. Improved cane boat or punt-rod, ornamented in gold. Salmon rods; winches; fly and dubbing books, with tackle and flies.

175 BUCHANAN, J., 191 Piccadilly—Manufacturer.

Three bows of yew wood, cut from the Alps; the first brought to this country. A variety of bows and arrows.

176 FARLOW, C., 221 Strand—Manufacturer.

Fishing rods, tackle, and cases; with various artificial baits and insects.

177 BERNARD, JOHN, 4 Church Place, Piccadilly—
Manufacturer.

A variety of fishing rods and tackle.

178 BAZIN, GEORGE, 110 Old Street, St. Luke's—
Manufacturer.

Assortment of taper quill floats for angling.

179 ALFRED, WILLIAM HENRY, 54 Moorgate Street—
Manufacturer and Proprietor.

Complete set of highly-finished fishing tackle.

180 AINGE & ALDRED, 126 Oxford Street—
Manufacturers.

Bows, arrows, and archery accoutrements, of various patterns and designs. Fishing rods and tackle.

181 FARLOW, JOHN KING, 5 Crooked Lane, City—
Manufacturer.

Salmon rod, winch lines, flies, hooks, &c., and all necessary gear for salmon fishing. Grilse or sea-trout rod, with the necessary tackle. Fly rod, with tackle complete. General rod, for fly-fishing, trolling, and bottom fishing, with the requisite tackle and fittings. Spinning and trolling rods, with tackle complete, artificial bait, &c.

182 JONES, JAMES, 111 Jermyn Street, St. James—
Manufacturer.

Specimens of fishing rods and tackle.

183 JACOBS, GEORGE, 32 Cockspur Street—Inventor.
and Manufacturer.

English long bows for ladies and gentlemen, composed of different rare woods, viz., rosetta, tulip, snake, part-ridge, rose, purple, kingwood, and hickory. English and Flemish long bows. Collection of English arrows of various weights and woods, with quivers and accoutrements.

The registered protector umbrella. The novelty consists in unscrewing and retaining the handle, which renders the umbrella useless to any but the owner.

Strangers' guide map, showing all the principal streets, bridges, railways, and exhibitions of London, together with a mariner's compass. The map can be inserted in umbrellas, riding-canes, walking-sticks, &c.

Fine specimen of Malacca cane, mounted in basso-relievo. Dragon canes mounted; and tortoiseshell walking-stick mounted in gold.

Specimen of rhinoceros' horn and of sea-horse's tooth. Collection of English sticks of natural growth, in the rough and finished state.

184 JEFFERIES, ISAAC, 40 Mulgrave Place, Woolwich—
Manufacturer.

Improved tennis racquets. Irish shaped racquets. English shaped racquets. Racquet and five balls.

185 LOCAL COMMITTEE, Falmouth and Penryn—Producers.

Preserved pilchards. Model of pilot-boat, built by R. Lee, Falmouth. Model of Falmouth river barge, and of the new Mevagissey drift and fishing-boat, made by Richard Treginza. Model of Seine boat, built by P. Lelean, Mevagissey. Nets used in the Cornish fisheries. Apparatus for extracting pumps from mines which are filled with water; invented by Arthur and Edey. Reversing apparatus, &c.; inventor, Mr. R. Hosking, of Perron Foundry.

186 CLAPHAM, MARK, High Street, Eton—Manufacturer.

Bats, stumps, balls, pads, gloves, and gauntlets, for the game of cricket.

187 GILBERT, WM., Rugby—Manufacturer.

Foot-balls of leather, dressed, ornamented, and coloured.

188 LAMBERT, ELEANOR, 89 Leman Street, Goodman's
Fields, Whitechapel—Manufacturer.

Specimens of artificial flies, for angling.

189 CLEMENTS, J., Leicester—Inventor and
Manufacturer.

Newly invented bat for cricket playing, having a piece of whalebone let down the centre of the handle to make it flexible.

190 MASSEY, W. A., 41 Sir Thomas's Buildings, Liverpool—
Producer.

Pair of bowls and jack, representing the English game of bowling. The stand or pedestal is a specimen of owl turning.

191 DUKE & SON, Penshurst, near Tunbridge, Kent—
Manufacturers.

Articles used for the game of cricket, comprising balls, bats, stumps, leg-guards, gauntlets, tubular India-rubber gloves, spiked soles, &c.

192 GOURLAN, J., Edinburgh—Manufacturer.

Specimens of balls for playing the ancient Scottish game of "Golf."

193 PEACOCK, ANTHONY, 2 Cumberland Row, Islington—
Inventor.

Board and pieces, for playing the game of Agon, or the Queen's guards; with book of instructions.

194 PAGE, ELEANOR & WILLIAM, Kennington Common—
Manufacturers.

Cricket bats. Gauntlets, for keeping wicket. Tubular India-rubber gloves, leg-guards, cricket balls, cricket stumps, brass ferruled, and ash topped. Spike soles, for cricket shoes.

195 MEDWAY, JAS., 134 St. John Street, Smithfield—
Designer and Manufacturer.

Cricket stumps constructed on a novel and simple principle; the three upright pieces move upon rule joints, which, upon the slightest blow from the ball, fall instantaneously in whatever direction they may be struck. Registered.

196 LILLYWHITE & SONS, 10 Prince's Terrace, Islington—
Inventors and Manufacturers.

Cricket bats, of superior wood. Cricket balls. Wickham's trap balls. Set of Allen's stumps. Leg-guards, on a new design, for preventing the ball (when bowled) from injuring the leg. One pair made of leather, which material has always been used. Tubular galvanized India-rubber gloves. New wicket-keeping perforated gloves. Spiked soles. Scoring booth on a new principle. Flannel dress, comprising a pair of trousers, jacket, cap, and belt.

197 DARE, MATILDA, & SONS, Lord's Cricket Ground,
St. Marylebone—Manufacturers.

Cricket bats and wickets.

DARK, ROBERT, Lord's Cricket Ground—Inventor and Manufacturer.

Articles used in the game of cricket; tubular India-rubber gloves; gauntlet gloves; leg guards; spiked soles shoes; cricket balls of varied sizes.

CALDECOURT, WILLIAM HENRY, 14 Townsend Road, St. John's Wood, Marylebone—Manufacturer.

Cricket catapults, a machine for propelling the ball in absence of a first-rate bowler. Cricket bats, and sets of bats.

TREBECK, THOMAS FREDERICK, 3 Sun Street, Bishopsgate Street—Proprietor.

Variety of rocking-horses, dolls, and miscellaneous toys.

GOING, J., Clonmel, Ireland—Producer.

Specimens of various soaps.

GORDON, C., Museum, Dover—Manufacturer.

Group of stuffed British birds, representing an owl surrounded by small birds.

HARBOR, THOMAS, Reading—Manufacturer.

British specimens of taxidermy, viz.:—Mute swan (*Cygnus*), attracted by teal (*Anas creca*); common buzzard (*Buteo*); clutching leveret; hobby hawk (*Falco sub-arcticus*); attacking partridges and young (*Tetrao perdix*); pair of snails and young ones (*Gallinula crux*); bearded vulture, male and female (*Parus biarmicus*); pair of fishers (*Alcedo ispedus*); pair of grosbeaks (*Loxia struthus*); case of pheasants (*Phasianus colchicus*); at (*Mustela putorius*); and rabbit.

BEEVOY, J. (M.D.), Newark-upon-Trent—Inventor.

An improved process of taxidermy, or stuffing of skins, illustrated by a noted foxhound from the Rufford. This is effected by the use of gutta percha, by which a complete muscular model of the animal is taken, the removal of the skin. The skin being replaced, the resemblance of the animal, with the points fully exposed, is produced.

RETTERAY & THOMPSON—Manufacturers.

Specimens of fishing nets.

WALFORD, C., sen., Witham, Essex—Preserver.

Series of preserved British birds—common barn owl, common brown owl, long-eared owl, spotted woodpecker, pair common swallows, pair house martens, flycatcher (spotted), grasshopper warbler, redstart, hedge sparrow, mountain finch, bullfinch, red linnet, and house sparrow.

YERBURY, J., 114 Bishopsgate St. Within—Proprietor.
His patent diaphragm tobacco-pipe bowl for cooling and collecting the essential oil and moisture of tobacco. The specimens exhibited are manufactured in china by Messrs. Josiah Wedgwood and Sons.

THOMPSON, HENRY, Weybridge Common, Chertsey, Surrey—Inventor and Manufacturer.

Imitative cameos, the small ones used for wafers. Gold and silver wafers.

BRINDLEY, J., Milk Street, Bristol.
All kinds of peculiar construction.

REED, J. W., 11 Peel Place, Kensington—Producer.
Wafers in glass case, with gilt edge; the stick black, the wafers yellow.

WALFORD, J., Witham, Essex.
Stuffed birds.

213 BARSHAM, SON, & Co., 41 Threadneedle Street, and Stratford—Manufacturers.

Specimen of pulped cloth, being a combination of paper, in a state of pulp, with a woven fabric.

Emery cloth, being an application of the pulped cloth, as a more durable substance than paper alone; used for the purpose of smoothing and polishing metals and machinery.

Glass cloth, a further application of pulped cloth as a more durable substance than glass paper; used by wood-turners, carvers of wood, carpenters, and others.

Glass paper, used principally by cabinet makers for smoothing the surface of wood.

Emery in a manufactured state, as used by engineers, lapidaries, and others for polishing metal, glass, &c. Manufactured from Naxos emery stone.

Black lead, manufactured from the raw substance so called, imported from Germany; used principally in England for giving lustre to stoves and grates.

Patent framed door-mat.

214 SACKER, FRED. CHRISTIE, 7 Epping Place, Mile End—Designer.

Compendium, or razor-strop, the strop itself being formed of a composition of wool; the interior containing two razors, tooth-brush, nail-brush, comb, scissors, tweezers, nail-file, looking-glass, shaving-brush, and soap.

215 ROGERS, ROBERT & HENRY, Prospect Row, Watcote—Manufacturer.

Specimens of glass, emery, and sand papers and cloths.

216 BURSILL, E. & CLARA, 9 York Terrace, Queen's Road, Hornsey Road.

Compressible toys.

217 AUSTIN, W., Crowhurst.
A foot-stool.

218 SHARP, J., Ilalton, Bucks.
Specimens of carvings.

219 WILLIAMS, THOMAS MUTLOW, 155 Oxford Street—Producer.
Case of stuffed birds.

220 FISHER, J., Blandford—Manufacturer.
Specimens of wire buttons.

221 LEADBEATER, JOHN, 19 Brewer Street, Golden Square—Manufacturer.

Case of mounted Indian game birds; case of mounted birds under glass shades. Shade said to contain the largest specimen of the toad and the least species of dog.

222 SPENCER, THOMAS, 7 Great Portland Street—Inventor and Producer.

Preserved birds, on artificial frost and snow, with water and a rock.

223 GARDNER, JAMES, 426 Oxford Street—Preserver.

Various specimens of stuffed birds; one half being birds of prey, indigenous to Britain, and the other showy-plumaged birds.

224 ANDERSON, RODERICK, Dunkeld, Scotland—Manufacturer.

Artificial salmon-flies, adapted for the river Tay and its tributaries.

Artificial trout-flies, for the lakes and rivers of Scotland.

225 FISHER, EDWARD, St. Mary's, Wisbech—Inventor and Producer.

Models of five stacks, to show a new mode of covering them with wood, iron, zinc, &c.

226 SLATER, JOHN, *Cheadle, Staffordshire*—Inventor and Manufacturer.

Twine reel, used by drapers, druggists, grocers, &c.; made of brass and lacquered.

228 DAUBARN, W., *Widch*—Manufacturer.

Specimens of reel and ball sewing cottons.

230 QUIN, JAMES, *Kidderminster*—Inventor, Designer, and Manufacturer.

Specimens of combed wool, in white and of various colours.

Gothic bird-cage, cut out of the wood.

Lathe, on a new plan, for foot wood-turning, the man sitting to his work.

Wood carpet-shuttle, with steel noses, on a new plan.

Carpet-shuttle, copper, with wood noses, a new invention.

Parasol-frame, to be opened by pressing in the ferule.

231 CHAMBERLAIN, THOMAS, *Ashby-de-la-Zouch, Leicestershire*—Manufacturer.

Stones for burnishing all kinds of plate and gilded work, both in the rough and prepared state.

232 MOORE, GEORGE, & MURPHY, MICHAEL, 116 & 117 *Holborn Hill, and King's Cross*—Inventors and Manufacturers.

Specimen of an ornamental wedding cake.

234 DUNBAR, WILLIAM, *Loch Inver, Golspie, Scotland*—Proprietor and Preserver.

Two cases of Sutherlandshire wild birds and animals: containing a roebuck, a common hare, two mountain hares, two wild rabbits, three grey partridges, two wood-cocks, a common snipe, a jack snipe, two golden plovers, three common pheasants, and one pied, two black cocks, two grey hens, five red grouse, male and female; twelve ptarmigans, males and females, in their spring, summer, autumn, and winter plumage. The golden eagle—mature female.

The majority were killed, and all were stuffed, by the exhibitor.

237 BROWN & SON, *Leeds*—Manufacturers.

Cotton bobbins and skewers. Flax bobbins, creel pins, and box-wood bosses. Worsted bobbins, spools, and carrying rollers. Silk bobbins.

239 STANDRING, JOHN, & BROTHER, *Manchester*—Manufacturers.

Braids, in gold, silk, mohair, worsted, and cotton, for trimmings and other purposes. Laces, in silk, worsted, and cotton, for corsets, dresses, and boots. Lines, plaited, in silk, worsted, linen, and cotton, for window blinds, pictures, &c. Dress cord plaited cotton, for stiff dresses. Bindings, figured and plain, in silk, mohair, and worsted, for coat bindings, &c. Fringes, in silk and cotton, for trimmings.

240 FLETCHER, HENRY, 8 *Swan Court, Manchester*—Inventor and Manufacturer.

Sheet of glass having brass letters and ornaments firmly attached.

Brass or zinc engraved plate, filled with a composition to resist the heat of the sun.

242 HALL, JOHN, *Green Gate Street, Oldham*—Designer and Inventor.

A bird-cage, containing 2,522 pieces, and composed of 21 different kinds of wood. In the front is the Oldham coat-of-arms, and on the right side, a representation of the Sailors' Home, Liverpool.

243 BELL & BLACK, 15 *Bow Lane*—Manufacturers.

Imitation vestas and congraves, without any combustible material.

Machine, with knife inserted, for cutting the matches in half.

Manufactured wax vesta matches.

Camphorated round wood congraves, which burn with an agreeable odour.

244 FLETCHER, W., *Burnham, near Bridgehead*—Manufacturer.

Working models of filtering vessels. Model of Burnham lighthouse. Specimens of amber, jets, &c., found on the coast of Norfolk, polished.

245 COWPER, EDWARD, F.R.S., 9 *Kensington Park Road, Notting Hill*—Inventor and Patentee.

Cheap educational models. An orrery. Section of a pump. Working parts of a steam-engine. Globe, showing the phases of the moon. Box of cubes. Measuring rods. Levers. Working loom. Door lock.

248 MORELL, H., 149 *Fleet Street*—Manufacturer.

Specimens of the manufacture of lead pencils.

250 WRIGHT, HENRY, *Relieve Steam Mills, Dublin*—Manufacturer.

Buttons made from bone, horn, and wood. Bone handles for knives and forks, and for tooth and nail brushes. Bone knives and forks for lunatic asylums. Neats-foot oil. White cow hair, used in blanket making. Brown cow hair, used by felt-makers, for ship sheathing, &c. Gelatine and portable soup. Farina, prepared from potatoes. White and yellow Indian corn meal. Beet-root sugar. Bone-dust for farmers' use.

252 STAIGHT & SONS—Manufacturers.

Specimens of manufactures from ivory.

253 ILIFF, W. T., *Newington*—Producer.

"London street scenes," "May day," &c., modelled (by the hand) from gutta percha, by Miss E. Moorsom, of Kennington, aged 13.

257 BRISON, R., *Bristol*—Inventor and Manufacturer.

Models of foot, made of a material that will bear nailing or hammering, on which boots or shoes can be made.

259 RITCHIE, JAMES, *Canninggate, Edinburgh*—Manufacturer.

Sash-line with metallic centre to increase its strength, metallic cord for the balance-weights of gas-lustres; cord for hanging pictures and for bell-pulls.

261 EARNSHAW, R. J., *Doncaster*—Manufacturer.

Wool sheets or top sheets, for packing fine combed wool, called "tops;" hand-spun and hand-woven, from fine hemp, and lined with calico.

262 NAPIER, JOHN, *Edinburgh*—Inventor.

Pair of printing cases, full size, in one-third less space than those in general use; bevelled, or at an angle, instead of square.

Model of a heating or cooling apparatus for rooms. By filling the inside cylinder with hot water or steam, and turning the cylinder, the fan will throw off the heat, and consequently raise the temperature. If any of the common freezing mixtures be placed inside the cylinder, on its being turned round, cold air will be thrown off and the temperature lowered.

A method of turning up quickly books of the Bible, or chapters of other books.

A method of ornamenting end wood, for cabinet, joiner, and other work, mouldings, &c.

266 WANLESS, THOMAS, *Rock, near Alnwick, Newcastle*—Manufacturer.

Lady's pincushion and piercers.

Swing plough, constructed to prevent dirt or soil attaching to the mould board.

267 DOWN, STEPHEN, *Icelythorn, near Glastonbury*—Designer.

Model of a decoy pool, for taking wild fowl.

NORTH TRANSEPT GALLERY.

LIVERPOOL LOCAL COMMITTEE, *Town Hall, Liverpool*—Proprietors; J. C. ARCHER, Collector and Arranger.
 Section of the Samples of Foreign Articles Imported into Liverpool within the last Five Years. The Collection
 complete as to Vegetable Fibres, Materia Medica, Groceries, and Mineral Products; incomplete as to Perishable,
 and Vegetable Products, and Manufactured Goods.

[N.B.—Articles marked thus (*) in the last column are rarely imported, and in comparatively insignificant quantities.]

CASES 1, 2, 3.—CLASS A. ORGANIC SUBSTANCES. Section 1. ANIMAL PRODUCTS.

Subsection 1st, *Mammalia*.

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1850.
horns	<i>Axis maculata</i> .	Ruminantia .	East Indies . .	Knife handles and other articles.	250 tons.
horns	<i>Bos Bubalus</i> . .	Ruminantia .	East Indies . .	Buttons, knife handles, &c.	280 tons.
horn tips . . .	<i>Bos Bubalus</i> . .	Ruminantia .	East Indies . .	Buttons, &c. . . .	120 tons.
horn shavings .	<i>Bos Bubalus</i> . .	Ruminantia .	East Indies . .	Making gelatine, &c. .	*
cow horns . . .	<i>Bos Taurus</i> . . .	Ruminantia .	Monte Video . .	Knife handles and various articles.	700 tons.
fine quills. . .	<i>Hystrix cristata</i> .	Rodentia . .	Barbary	Various ornamental purposes.	*
or elephants' teeth	<i>Elephas Africanus</i>	Pachydermata	W. Coast of Africa	Various ornamental purposes.	31 tons.
orse teeth (erroneously supposed to be from the sea-elephant).	<i>Hippopotamus amphibius</i> , or probably <i>H. Libericensis</i> .	Pachydermata	W. Coast of Africa	Making artificial teeth, &c.	2½ tons.
tails (3 varieties)	<i>Equus Caballus</i> .	Pachydermata	Buenos Ayres, &c.	Stuffing cushions, &c..	430 bales and bags.
hair	<i>Equus Caballus</i> .	Pachydermata	Buenos Ayres, &c.	Stuffing cushions, &c. .	90 tons.
il hair and cow	<i>Bos Taurus</i> (male and female).	Ruminantia .	Monte Video, &c..	Stuffing cushions and mixing with lime for mortar.	170 tons.
wool (5 varieties)	<i>Auchenia alpaca</i> .	Ruminantia .	Lima, Chili, &c. .	Making fine cloths. . .	900 ballots or small bales
a wool	<i>Auchenia Vicunia</i>	Ruminantia .	Lima	Making fine cloths. . .	300 ballots.
wool	<i>Auchenia Llama</i> .	Ruminantia .	Lima	Making fine cloths, and for mixing with Alpaca wool.	1,100 ballots.
' hair (2 qualities)	<i>Camelus Bactrianus</i> .	Ruminantia .	Cairo and Alexandria.	Weaving into cloth, making paint brushes, &c.	25 tons.
wool (Cachmere)	<i>Capra ægargus</i> . .	Ruminantia .	Turkey.	Weaving fine cloths, shawls, &c.	200 bales.
wool (mohair) .	<i>Capra ægargus</i> . .	Ruminantia .	Turkey.	Weaving fine cloths, shawls, &c.	200 bales.
s wool (47 varieties classified under heads Russian, Persian, and Australian, Iceland, East an, Cape of Good Hope, Barbary and an, Turkey, Egyptian, Spain and Portugal, Italian, West Indian, and South American).	<i>Ovis aries</i>	Ruminantia .	Europe, Asia, Africa, America, and Australia.		
hair.	<i>Sus scrofa</i>	Pachydermata	United States . .	Making ropes, inferior brushes, &c.	30 tons.
wool, or rabbits'	<i>Lepus cuniculus</i> .	Rodentia . .	Holland	Substitute for beaver in making hats.	*
and Furs—					
alo robes . . .	<i>Bos Americanus</i> .	Ruminantia .	Canada	For rugs, mats, &c. . .	500
r bear	<i>Ursus maritimus</i> .	Carnivora. .	North America .	For rugs.	*
r	<i>Felis tigris</i>	Carnivora. .	East Indies . . .	Ornamental.	*
.	<i>Phoca vitulina</i> . .	Carnivora. .	Newfoundland .	Common caps, &c. . .	80,000; mostly in the raw state.
r	<i>Axis maculata</i> . .	Ruminantia .	East Indies . . .	Ornamental.	2,000 to 3,000.
oon	<i>Procyon lotor</i> . . .	Carnivora. .	Canada	As a coarse fur for clothing.	300.
pard	<i>Felis leopardus</i> .	Carnivora. .	Africa	Ornamental.	*
tria, or Nutria	<i>Myopotamus coypus</i> .	Rodentia . .	Rio de Janeiro .	As a coarse fur for clothing.	1,500.
r, South America	<i>Lutra Braziliensis</i>	Carnivora. .	Rio and Bahia. .	Clothing.	*
r, North America	<i>Lutra latixina</i> . .	Carnivora. .	North Carolina .	Clothing.	*
quash	<i>Fiber vulgaris</i> . .	Rodentia . .	Canada	Clothing.	700 to 800.
ver	<i>Castor fiber</i> . . .	Rodentia . .	Canada	Clothing.	*
ssum	<i>Didelphis Virginiana</i> .	Marsupialia	North America .	Clothing.	2,000.
irrel. grey. . .	<i>Sciurus cinereus</i> .	Rodentia . .	North America .	Ornamental fur . . .	500 to 600.
irrel. Siberian	<i>Sciurus vulgaris</i> , var	Rodentia . .	Russia	Ornamental fur . . .	*
le	<i>Mustela zibellina</i> .	Rodentia . .	Russia	Ornamental fur . . .	*
ine.	<i>Putorius ermineus</i> .	Rodentia . .	Russia	Ornamental fur . . .	*
k	<i>Mustela lutreola</i> .	Rodentia . .	United States and the North of Europe.	Ornamental fur . . .	*
ic Marten . . .	<i>Mustela foina</i> . .	Rodentia . .	Hamburg. . . .	Ornamental fur . . .	*

NORTH TRANSEPT GALLERY.

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1884
Skins and Furs—cont.					
Baum Marten . . .	Mustela martes . .	Rodentia . .	Hamburg . . .	Ornamental fur . .	*
Kollinski	Mustela Sibirica . .	Rodentia . .	Russia	Ornamental fur . .	*
Fitch	Mustela putorius . .	Rodentia . .	Holstein and Hamburg.	Ornamental fur . .	*
Chinchilla	Chinchilla laniger . .	Rodentia . .	Valparaiso . . .	Ornamental fur . .	*
Bastard chinchilla .	Chinchilla brevicaudata.	Rodentia . .	Lima	Ornamental fur . .	*
Ambergris	Physeter macrocephalus.	Cetacea . .	Pacific Ocean . .	Used as a perfume . .	*
Sperm oil	Physeter macrocephalus.	Cetacea . .	New York	For burning	25 tons.
Pot-head whale . . .	Gobiocephalus deductor.	Cetacea . .	Newfoundland . .	For burning	325 tons.
Seal oil (4 varieties)	Phoca vitulina . .	Carnivora . .	Newfoundland . .	For burning	3,000 tons.
Lard	The melted fat of swine.	Pachydermata	United States . .	. . . . .	8,000 kegs.
Bears' grease . . .	Ursus Americanus	Carnivora . .	United States . .	Almost useless, except as grease for work.	
Animal charcoal . .	Carbo animalis . .	..	Hamburg and France.	For sugar refining . .	*
Tallow	The melted fat of oxen and sheep.	..	United States, Russia, East Indies, South America, and Australia.	Making candles, &c. .	1,180 tons.
Mares' oil, or horse grease.	The fat of the horse	..	Monte Video . .	Making soft soap, &c.	
Cat-gut	Manufactured from the intestines of sheep.	..	Naples	Strings of musical instruments.	*

Subsection 2nd, *Aves—Birds.*

Swan skin	Cygnus olor . . .	Natatores . .	Hamburg	Ornamental clothing .	*
Guanos	The indurated feces of sea birds.	..	South America and the Coast of Africa.	Manure	2,800 tons.
Bolivian (Agamas).					
Bolivian (San Isidore).					
Bolivian.					
Peruvian.					
Patagonian.					
Ichaboe.					
Albumen	The white of eggs dried.	..	Havre	Used in calico printing	One small quantity only for experiment

Subsection 3rd, *Reptilia—Reptiles.*

Tortoiseshell	Testudo imbricata	Chelonia . .	W. Coast of Africa	Making combs, &c. .	2½ tons.
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Subsection 4th, *Pisces—Fishes.*

Isinglass (East Indian)	The air-bag of several species of fish, principally of the genera Silurus, Pimelodus, and Polynemus.	. .	Manilla	For making a nutritious food, and various other economical purposes.	2 tons.
Isinglass (Brazilian Tongue).		. .	Peru		15 tons.
Isinglass (Maranham Tongue).		. .	Maranham . . .		5 tons.
Anchovies					
Sardines.	Clupea encrassicholus.				
Cod oil	Gadus Morrhua . .	. .	Newfoundland . .	. .	2,500 tons.
Cod-liver oil	Oil expressed by heat from the liver of the cod-fish.	. .	Newfoundland . .	. .	300 tons.

Subsection 5th, *Mollusca.*

Cuttle-fish bones . .	Sepia officinalis . .	Cephalopoda .	The Levant . . .	Polishing metals, and making tooth-powder, &c.	18 cwt.
Conch shells	Strombus pugillus	Pectinibranchiata.	The Bahamas . .	For shell cameos . .	120,000 shells

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1850.
Mother-of-Pearl shells, (3 varieties).	Haliotis . . .	. . .	Manilla, Society Islands, and Pa- nama.	Buttons, knife-handles, and other ornamental articles.	120 tons.
Cowries (live) . . . Cowries (dead).	Cypræa moneta .	Pectinibranch- iata.	East Indies . .	Exported to Africa, where they are used as money.	444 tons.

Subsection 6th, Insecta—Insects.

Cochineal Mexican, Black. Mexican, Silver. Honduras, Black. Honduras, Silver. Truxillo, a fine sample, sent expressly for the Exhibition.	Coccus cacti . .	Hemiptera .	South America .	For dyeing	27 tons.
Granilla, the garblings of cochineal. Cantharides, or Spanish flies.	Cantharis vesica- toria.	Coleoptera .	Spain, Russia, and Hamburg.	Pharmaceutical, for raising blisters.	

Subsection 7th, Radiata.

Sponge (Fine)	Spongia officinalis	. .	Turkey	Various purposes . .	13 cases.
Sponge (Honeycomb) .	Spongia (?) . . .	. .	Turkey	Various purposes . .	25 cases.
Sponge (Bahama) . . .	Spongia (?) . . .	. .	Nassau	Various purposes . .	75 bales and boxes.

Subsection 8th, Articles produced by Insects.

Lac (stick) Lac (lump). Lac (shell, 3 sorts). Lac (plate, 2 sorts). Lac-dye	Coccus lacca . .	Hemiptera .	East Indies . .	For varnishes . . .	440 tons.
Silk (China) Silk (Italian). Silk (Italian wasli). Silk (knubs and husks). Silkworm-gut	Bombyx mori . .	Lepidoptera .	. . . .	For dyeing Various, and well known	177 tons.
	Bombyx mori . .	Legridoptera .	Italy	Used for fishing-lines.	*
	(The secretion of the sericterium, drawn out and dried).				
Galls (white) Galls (blue).	Quercus Gallæ . .	. . . .	Smyrna and Con- stantinople.	Dyeing, and in medi- cine.	277 tons.
	(The galls produced on the oak by <i>Cynips</i> . The white galls are taken before the escape of the larva, the blue are those from which the insect has escaped).				
Bees'-wax (5 varieties) .	Cera flava (A secretion of the honey-bee, <i>Apis mellifica</i> , Hymen- optera).	. . . .	Calcutta, Bombay, Africa, United States, &c.	For various pharma- ceutical and econo- mical purposes.	24 tons.

CLASS A.—ORGANIC SECTION. SECTION 2. VEGETABLE SUBSTANCES.

Subsection 1st, Oils and Balsams.

Essential oils of— Cassia	Cinnamomum Zey- lanicum. Var. cassia.	Lauracæ .	Hamburg . . .	In perfumery and con- fectionery.	*
Cinnamon	Cinnamomum Zey- lanicum.	Lauracæ .	Ceylon and the East Indies.	Perfumery and confec- tionery.	84 lbs.
Lavender	Lavandula Spica .	Labiatae .	Hamburg . . .	Perfumery	*
Cloves	Caryophyllus aro- maticus.	Myrtacæ .	Holland	Perfumery and confec- tionery.	224 lbs.
Nutmegs	Myristica moschata	Myristicacæ	Hamburg . . .	Perfumery and confec- tionery.	*

NORTH TRANSEPT GALLERY.

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1890.
Essential oils of— <i>cont.</i>					
Lemon-grass . . .	Andropogon calamus-aromaticus.	Graminaceæ	Calcutta . . .	Adulterating otto of roses, and as a rubefacient.	50 lbs.
Juniper	Juniperus communis.	Coniferæ	Hamburg	Pharmaceutical . . .	2 cwt.
Cetronella	Citrus medica	Aurantiaceæ	Italy	Perfumery	*
Orange (peel) . . .	Citrus aurantia	Aurantiaceæ	Messina	Perfumery	168 lbs.
Lemon	Citrus limonium	Aurantiaceæ	Messina	Perfumery	4 cwt.
Neroli (orange flowers)	Citrus aurantium	Aurantiaceæ	Messina	Perfumery	*
Bergamot	Citrus aurantium. Var. Bergamii.	Aurantiaceæ	Messina	Perfumery	150.
Aniseed	Pimpinella anisum	Apiaceæ	Germany	Pharmaceutical, &c. .	*
Peppermint	Mentha piperita	Labiatae	New York	Pharmaceutical . . .	1,000 lbs.
Cajaputi or kyaputi .	Melaleuca minor	Myrtaceæ	East Indies	Pharmaceutical . . .	*
Otto of roses	Rosa centifolia	Rosaceæ	Turkey	Perfumery	*
Rosemary	Rosmarinus communis.	Labiatae	Hamburg	Perfumery	*
Thyme	Origanum vulgare	Labiatae	Hamburg	Pharmaceutical . . .	*
Fixed oils of—					
Poppy-seed	Papaver somniferum.	Papaveraceæ	France	As salad oil, &c. . .	3 tuns.
Pea-nut	Arachis hypogæa	Fabaceæ	W. Coast of Africa	Dressing cloths, &c. .	80 to 90 tuns.
Olive oil (8 varieties)	Olea Europæa	Oleaceæ	South Europe . . .	Dressing woollen cloths, &c.	10,038 tuns.
Rape oil (2 varieties)	Brassica napus	Crucifere	Antwerp	Machinery, &c. . . .	20 tuns.
Castor oil	Ricinus communis	Euphorbiaceæ	East & West Indies	Pharmaceutical . . .	45 tuns.
Seed oil	Jatropha curcas	Euphorbiaceæ	Lisbon	Burning in lamps, and dressing woollen cloths	700 tuns.
Palm oil	Elais Guineensis & Cocosbutyracea.	Palmaceæ	W. Coast of Africa	Making soap, &c. . .	16,252 tuns.
Coker, coco, or cocoonut oil.	Cocos nucifera	Palmaceæ	Singapore and Manila.	Making soap, stearine candles, &c.	340 tuns.
Oil of mace	Myristica moschata.	Myristicaceæ	East Indies . . .	Pharmaceutical and confectionery.	*
Oil of bays	Laurus nobilis	Lauraceæ	Trieste	Veterinary medicine .	*
Vegetable tallow . .	Croton sebiferum	Euphorbiaceæ	China	Sent for experiment .	*
Balsams—					
Tolu	Myrospermum toluiferum.	Fabaceæ	Savanna	Pharmaceutical . . .	*
Peru	Myrospermum Peruiferum.	Fabaceæ	Callao	Pharmaceutical . . .	*
Copaiba	Copaifera multi-juga and other species.	Fabaceæ	South America . .	Pharmaceutical . . .	11 tuns.
Canada	Abies balsamea	Coniferæ	Quebec, &c. . . .	Pharmaceutical, &c. .	*

Subsection 2nd, Fruits, Nuts, &c.

Mangoes (pickled) . .	Mangifera indica	Anacardiaceæ	Calcutta	As a pickle	150 gallons.
Tamarinds	Tamarindus indica	Fabaceæ	East and West Indies.	As a preserve, and medicinal.	20 tuns.
Guava jelly	Psidium pyrifera	Myrtaceæ	South America and West Indies.	As a preserve, and medicinal.	2½ tuns.
Limes (preserved) . .	Citrus Lima . .	Aurantiaceæ	South America . .	Table fruit	15 cwt.
Olives (French and Spanish.)	Olea Europæa	Oleaceæ	Spain, France, &c.	Table fruit	420 gallons.
Cranberries	Oxycoccus macrocarpus.	Vacciniaceæ	North America . .	Culinary fruit . . .	370 gallons.
Capers	Capparis spinosa (The flower buds pickled).	Capparidaceæ	France	Culinary purposes . .	3½ tuns.
Currants or Corinths (6 varieties.)	Vitis vinifera . .	Vitaceæ	The Greek Islands	Culinary fruit . . .	5,450 tuns.
Raisins (6 varieties)	Vitis vinifera . .	Vitaceæ	South Europe . . .	Culinary and table fruit.	2,795 tuns.
Prunes	Prunus domestica (var. P. Juliana).	Drupaceæ	France	Table fruit	193 tuns.
Pomegranates	Punica granata	Myrtaceæ	Lisbon, &c. . . .	Table fruit	*
Dates, Tafilat and white Figs (3 varieties) . .	Phoenix dactylifera	Palmaceæ	Barbary and Egypt	Table fruit	4 tuns.
	Ficus carica . . .	Moraceæ	Turkey, Greece, and Malaga.	Table fruit	358 tuns.
Fig cake	Compressed figs and almonds.	Moraceæ	Alicant	Table fruit	2½ tuns.
Ground nuts	Arachis hypogæa.	Fabaceæ	W. Coast of Africa	For eating, but chiefly for expressing oil.	400 quarters.
Pistachio nuts	Pistacia vera . .	Anacardiaceæ	Turkey and Greece	Edible fruit. . . .	*
Almonds (4 varieties)	Amygdalus communis.	Drupaceæ	Barbary, Spain, Sicily, and Smyrna.	Table fruit	57 tuns.

NORTH TRANSEPT GALLERY.

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1850.
l nuts, or hazel-nuts (varieties).	<i>Corylus avellana</i> .	Corylaceæ (or Amentaceæ)	Spain, Turkey, and Sicily.	Table fruit	44,100 bushels.
ory nuts	<i>Carya alba</i>	Juglandaceæ .	North America .	Table fruit	20 bushels.
an, or Pekan nuts .	<i>Carya olivæformis</i> .	Juglandaceæ .	North America .	Table fruit	* .
nuts	<i>Juglans regia</i>	Juglandaceæ .	France and Italy .	Table fruit	2,000 bushels.
tnuts	<i>Castanea vesca</i>	Corylaceæ .	Spain	Table fruit	600 bushels.
rican chestnuts .	<i>Castanea Americana</i> .	Corylaceæ .	North America .	Table fruit	150 bushels.
ew nuts	<i>Anacardium occidentale</i> .	Anacardiaceæ	East and West Indies.	Table fruit	*
caya, or Sapucaia ts.	<i>Lecythis ollaria</i> .	Lecythidaceæ	Para	Table fruit	100 bushels.
, Castana, or Brazil t.	<i>Bertholettia excelsa</i> .	Lecythidaceæ	Para and Ceara .	Table fruit	26,500 bushels.
hwa, or Suwarrow t.	<i>Caryocar butyrosu-</i>	Rhizobolaceæ	South America .	Table fruit	*
r, coco, or cocoa t.	<i>Cocos nucifera</i> .	Palmaceæ .	West Indies and South America.	Table fruit	300,000 nuts.
table-ivory nuts .	<i>Phytelephas macrocarpa</i> .	Palmaceæ .	Lima and Callao .	Making small articles, to imitate ivory.	27,000 nuts.
illa nuts	<i>Attalea funifera</i> .	Palmaceæ .	Para	Parasol handles and other small articles.	6,625 nuts.
. nuts	<i>Areca catechu</i> .	Palmaceæ .	Calcutta	Carbonized and powdered, it is used as a dentifrice.	5 cwt.
uin bean	<i>Dipterix odorata</i> .	Fabaceæ .	Maranham . . .	Perfuming snuff, &c. .	*

Subsection 3rd, *Materia Medica, or Medicinal Products.*

parilla (3 varieties)	<i>Smilax officinalis</i> .	Smilacæ .	Tampico, Lima, and Jamaica.	. .	5½ tons.
sia, or bitter wood	<i>Picræna excelsa</i> .	Simarubacæ	Jamaica . . . .	. .	150 tons.
nd moss	<i>Cetraria Islandica</i> .	Lichenes .	Hamburgh . . .	. .	* .
a fistula	<i>Cathartocarpus fistula</i> .	Fabaceæ .	Calcutta . . . .	. .	5 chests.
ican spikenard .	<i>Aralia racemosa</i> .	Araliaceæ .	United States	Imported by certain herb doctors in rather large quantities.	
e oak	<i>Quercus alba</i>	Corylaceæ .			
c-cherry bark . .	<i>Prunus Virginica</i> .	Drupaceæ .			
on hair	<i>Adiantum pedatum</i> .	Filices .			
lia	<i>Lobelia inflata</i> .	Lobeliaceæ .			
weed	<i>Asclepias Syriaca</i> .	Asclepiadaceæ			
on's seal	<i>Convallaria multiflora</i> .	Liliaceæ .			
roba, or locust-pods	<i>Ceratonia Siligna</i> .	Fabaceæ .	South of Europe .	For the mucilage, but principally for feeding horses.	*
co	<i>Artanthe elongata</i> .	Piperaceæ	Brazil . . . .	. .	5 cwt.
u leaves	<i>Barosma crenata</i> .	Rutaceæ .	Cape of Good Hope	. .	7 bales.
etta, or chirayta .	<i>Agathotes chirayta</i> .	Gentianacæ .	Calcutta . . . .	. .	5 cwt.
omile flowers . .	<i>Anthemis nobilis</i> .	Asteraceæ .	Hamburgh . . .	. .	10 cwt.
a leaves (East In-	<i>Cassia elongata</i> .	Fabaceæ .	Bombay . . . .	. .	1½ ton.
n).					
a leaves (Alexan-	<i>Cassia acutifolia</i> .	Fabaceæ .	Alexandria . . .	. .	15 cwt.
an).	and other species.				
seed	<i>Anethum graveolens</i> .	Apiaceæ .	Leghorn . . . .	. .	*
ce seeds	<i>Cydonia vulgaris</i> .	Pomaceæ .	Italy . . . .	. .	110 lbs.
ulus Indicus . .	<i>Anamirta cocculus</i> .	Menispermaceæ.	Malabar . . . .	. .	*
n hemp	<i>Cannabis sativa</i> .	Cannabinaceæ	Calcutta . . . .	. .	*
ry-root	<i>Cicorium intybus</i> .	Asteraceæ .	Hamburgh . . .	Medicinal, but chiefly used for the adulteration of coffee.	5 tons.
leaves	<i>Rosa gallica</i>	Rosaceæ .	Hamburgh . . .	. .	3 cwt.
granate bark . .	<i>Punica granatum</i> .	Myrtaceæ .	Barbary . . . .	. .	*
n seed	<i>Artemisia maritima</i> .	Asteraceæ .	The Levant . . .	. .	*
er berries	<i>Juniperus communis</i> .	Coniferae	Hamburgh . . .	. .	200 bags.
amoms (2 varieties)	<i>Elettaria cardamomum</i> .	Zingiberaceæ	Madras and Java .	. .	15 cwt.
ea grains, or grains paradise.	<i>Amomum grana paradisi</i> .	Zingiberaceæ	Guinea Coast . .	. .	1 ton.
ray seed (2 varieties).	<i>Carum carui</i>	Apiaceæ .	Holland and Germany.	. .	37 tons.
n seed	<i>Cuminum cyminum</i> .	Apiaceæ .	Malta and Sicily .	. .	6 cwt.
greek seed . . .	<i>Trigonella fœnum-græcum</i> .	Fabaceæ .	Leghorn and Germany.	Veterinary medicines	15 cwt.

NORTH TRANSAPT GALLERY.

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1856.
Cubebs	Piper cubebs . .	Piperaceæ	Brasil	Medicinal	8 tons.
Aniseed (2 varieties) .	Pimpinella anisum	Apiaceæ . .	Germany, Holland, and Alicant.	. . . . .	1½ tons.
Peruvian bark	Several species of Cinchona.	Rubiaceæ . .	South America . .	. . . . .	35 tons.
Crown, or Loxa. Ash, or Jaen. Grey, or silver. Red. Royal yellow.					
Pink root	Spigelia Marilan- dica.	Spigelliaceæ .	United States . .	. . . . .	*
Pareira brava	Cissampelos pareira	Menispermaceæ.	South America . .	. . . . .	*
Aristolochia root . . .	Aristolochia ro- tunda.	Aristolochiaceæ.	South of Europe . .	. . . . .	*
Galangal root	Alpinia galanga .	Zingiberaceæ	Singapore . . . .	. . . . .	8 tons.
Cascarilla bark	Canella alba . . .	Canellaceæ (?)	Nassau . . . . .	. . . . .	1½ tons.
Snake root	Polygala senega .	Polygalææ . .	New Orleans . . .	. . . . .	15 cwt.
Squill root	Scilla Maritima .	Liliacææ . . .	Malta . . . . .	. . . . .	*
Contrayerva root . . .	Dorstenia contra- yerva.	Moraceæ . . .	St. Vincent . . . .	. . . . .	*
Black hellebore	Helleborus niger .	Ranunculaceæ	Hamburg . . . . .	. . . . .	*
Angelica root	Archangelica offi- cinalis.	Apiaceæ . . .	Hamburg . . . . .	. . . . .	2 bales.
China root	Smilax China . . .	Smilacææ . . .	China . . . . .	. . . . .	*
Rhatany root	Krameria triandra	Polygalææ . .	Peru . . . . .	. . . . .	*
Iris, or orris root . . .	Iris florentina . .	Iridacææ . . .	Leghorn & Trieste	Perfumery, &c. . . .	3 tons.
Calumba root	Cocculus palmatus	Menispermaceæ.	Mozambique . . . .	. . . . .	*
He, or male jalap . . .	Ipomœa orizabensis	Convolvulacææ	Mexico	As a substitute for true Jalap.	2 tons.
Jalap (true)	Exogonium purga	Convolvulacææ	Vera Cruz . . . .	. . . . .	15 tons.
Rhubarb (2 varieties) .	Root of one or more plants of the ge- nus rheum.	Polygonacææ .	Turkey and the East Indies.	. . . . .	25 tons.
Gentian root	Gentiana lutea . .	Gentianacææ .	Hamburg and Marseilles.	. . . . .	6 tons.
Sassafras root	Sassafras officinalis	Lauracææ . . .	North America . .	. . . . .	30 cwt.
Sassafras bark	Sassafras officinalis	Lauracææ . . .	North America . .	. . . . .	*
Liquorice root	Glycyrrhiza glabra	Fabacææ . . .	Naples and Ger- many.	. . . . .	5 tons.
Ipecacuanha root . . .	Cephaelis ipecacu- anha.	Rubiaceææ . .	Rio Janeiro . . . .	. . . . .	20 bales.
Colocynth apples . . .	Citrullus colo- cynthis.	Cucurbitacææ	Spain, Smyrna, and Mogadore.	. . . . .	20 chests.

Subsection 4th, Vegetable Juices and Extracts, &c.

Liquorice juice and ex- tract.	Glycyrrhiza glabra	Fabacææ . .	Italy and Sicily .	Medicinal and other purposes.	40 tons.
Indian rubber, or caout- chouc (5 varieties).	Siphonia elastica .	Moracææ . .	Maranham	Very various	500 tons.
Gutta percha	Isonandra gutta . .	Sapotacææ . .	Singapore	Very various	280 tons.
Burgundy pitch	Abies excelsa . . .	Coniferææ . .	Hamburg	Pharmaceutical . . .	10 cwt.
Frankincense	Abietis resina . . .	Coniferææ . .	Hamburg	Pharmaceutical and for incense.	*
Rosin (2 varieties) . . .	. . . . .	. . . . .	United States . . .	Various	500 tons.
Gums and Gum Resins, &c.—					
Copal (African)	Hymenæa (Sp.?)	Fabacææ . .	Sierra Leone . . .	Varnish	17 tons.
Copal (Australian) . . .	Dammara Australis	Coniferææ . .	Australia and New Zealand.	Varnish	14 tons.
Copal (South America)	Hymenæa (Sp.?)	Fabacææ . .	Brazil	Varnish	2 tons.
Anime	Hymenæa Cour- baril.	Fabacææ . .	Bombay	Varnish	17 tons.
Aloes (Hepatic)	Albæ socotrina (various).	Liliacææ . . .	Bombay	Medicinal	2 tons.
Aloes (Cape)	Albæ spicata	Liliacææ . . .	Cape of Good Hope	Medicinal	6 tons.
Aloes (Cayenne)	Albæ indica (?) . .	Liliacææ . . .	Curaçoa	Medicinal	*
Aloes (Indian)	Albæ indica	Liliacææ . . .	Calcutta	Medicinal	*
Aloes (Socotrine)	Albæ socotrina . .	Liliacææ . . .	Bombay	Medicinal	3 tons.
Aloes (Barbadoes) . . .	Albæ vulgaris . . .	Liliacææ . . .	West Indies	Medicinal	*
Extract of logwood . . .	Hæmatoxylon cam- pechianum.	Fabacææ . . .	South America . .	Medicinal	*
Extract of rhatany root	Krameria triandra	Polygalææ . .	Lima and Callao . .	Medicinal	*
Gum Kino	Pterocarpus mar- supium (?).	Fabacææ . . .	East Indies	Medicinal	*

NORTH TRANSEPT GALLERY.

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1850.
Gums and Gum Resins, &c.—cont.					
Manna	Ornus Europea .	Oleaceæ . .	Sicily	Medicinal	21 cwt.
Opium	Papaver somniferum.	Papaveraceæ.	Smyrna	Medicinal	15 chests.
Gamboge (2 varieties)	Hebradendron cambogioides.	..	Africa	Medicinal, and for water colour painting.	*
Vegetable Wax . . .	Corypha cerifera .	Palmaceæ .	Para and Ceara .	Making candles, &c. .	*
Dragon's blood (2 varieties).	Calamus draco (?)	Palmaceæ .	Calcutta	Staining horn, and producing an imitation of tortoise-shell.	1 ton.
Guaiacum	Guaiacum officinale	Zygophyllææ .	West Indies . .	Medicinal	7 tons.
Red gum	Xanthorrhœa arborea.	Liliacææ . .	Swan River . .	Varnishes	*
Yellow Gum	Xanthorrhœa hastilis.	Liliacææ . .	Swan River . .	Varnishes	*
Gum Ammoniacum . .	Dorema ammoniacum.	Apiacææ . .	Bombay	Medicinal	17 tons.
Gum Assafetida (2 varieties).	Ferula assafetida	Apiacææ . .	Bombay	Medicinal	2 tons.
Scammony (2 varieties)	Convolvulus scammonia	Convolvulacææ	Smyrna	Medicinal	12 cwt.
Gum Benzoin (5 varieties).	Styrax Benzoin .	Styracææ . .	East Indies . .	Medicinal, and for varnishes, &c.	4 tons.
Gum olibanum . . .	Boswellia thurifera	Amyridacææ	East Indies . .	Medicinal, and for varnishes, &c.	5 tons.
Gum myrrh (2 varieties).	Balsamodendron myrrha.	Amyridacææ	East Indies and Turkey.	Medicinal, and for varnishes, &c.	2 tons.
Gum juniper	Callitris quadrivalvis.	Coniferææ . .	Mogadore . . .	Varnishes	*
Gum mastic	Pistacia lentiscus.	Anacardiaceæ	Constantinople .	Varnishes	12 cwt.
Gums Arabic, senegal, gedda, Barbary, &c.	Various species of Acacia.	Fabacææ . .	East Indies and Africa.	Various purposes . .	32 tons.
Turpentine (4 varieties.)	Pinus palustris and Pinus tæda.	Coniferææ . .	North America .	Various purposes . .	470 tons.

Subsection 5th, Dyeing Materials.

Nicaragua wood (2 varieties).	Cæsalpinia echinata.	Fabacææ . .	Rio de la Hache & Lima.	. .	570 tons.
Green Ebony	Jacaranda ovalifolia.	Bignoniaceææ.	Brazil . . . .	. .	30 tons.
Camwood	Baphia nitida . .	Fabacææ . .	Sierra Leone and Trade Town.	. .	110 tons.
Sapan wood	Cæsalpinia Sappan	Fabacææ . .	Calcutta . . . .	. .	120 tons.
Brasillets wood . . .	Cæsalpinia bahamensis.	Fabacææ . .	Nassau (New Providence).	. .	76 tons.
Zante, or Young Fustic	Rhus cotinus . . .	Anacardiaceææ	Zante, Patras, and Ithaca.	. .	356 tons.
Barwood	Baphia nitida . .	Fabacææ . .	The West Coast of Africa, Old Calabar.	. .	350 tons.
Logwood (5 varieties) .	Hæmatoxylon campechianum.	Fabacææ . .	St. Domingo, Tobasco, Honduras, Jamaica, Campeachy.	. .	1,700 tons.
Red Sande, or Red Sandal wood.	Pterocarpus Santalinus.	Fabacææ . .	Calcutta . . . .	. .	246 tons.
St. Domingo Fustic. .	Maclura tinctoria	Moracææ . .	St. Domingo . .	. .	120 tons.
Lananilla Fustic . . .	Maclura tinctoria	Moracææ . .	Lananilla . . . .	. .	460 tons.
Cuba Fustic	Maclura tinctoria	Moracææ . .	Island of Cuba .	. .	220 tons.
Rio Brazil wood . . .	Cæsalpinia brasiliensis.	Fabacææ . .	Rio de Janiero .	. .	320 tons.
Annotto, or Annatto, and Annatto seeds.	Bixa orellana . . .	Flarcourtiaçææ	South America .	. .	8 tons.
Munjeet, or Indian madder, or Bengal madder	Rubia cordifolia .	Rubiaceææ .	Bombay Calcutta, &c.	Red dye	525 tons.
Safflower (Bengal) . .	Carthamus tinctorius.	Compositææ	Calcutta (in bales)	Dyeing pink, making rouge, &c.	4 tons.
Safflower (Bombay). .	Carthamus tinctorius.	Compositææ	Bombay (in bales)	Dyeing, &c. . . .	12 tons.
Yellow berries (Persian)	Rhamnus infectorius.	Rhamnaceææ	The Levant . . .	Dyeing (particularly leather).	115 tons.
Yellow berries (Turkey)	Rhamnus infectorius.	Rhamnaceææ	Smyrna and Constantinople.	Dyeing (particularly Morocco leather).	115 tons.
Lima orchella, or Archella weed.	Rocella tinctoria	Lichenes . .	Lima and Valparaiso.	In manufacturing the dye called orchill.	2 tons.
Orchella weed	Angola . . . . .	..	Cape de Verde Islands.	. .	8 tons.

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1850.
Madder roots (3 varieties).	Rubia tinctorum .	Rubiaceæ .	Turkey, the Levant, and Bombay.	Dyeing	2,985 tons.
Turmeric	Curcuma Longa .	Zingiberaceæ	Bombay, Calcutta, and Madras.	Principally for dyeing; it is used in curries.	414 tons.
Quercitron bark (2 varieties).	Quercus tinctoria	Corylaceæ .	Philadelphia and Baltimore.	For dyeing	514 tons.
Alkanet root	Radix anchusæ .	Boraginaceæ .	Hamburg and South of France.	Gives a red colour to oils, fats, and wax.	5 cwt.
Caracas indigo . . . . .	. . . . .	. . . . .	Brazil . . . . .	. . . . .	. . . . .
Oude indigo . . . . .	. . . . .	. . . . .	Calcutta . . . . .	. . . . .	7 tons.
Bengal indigo . . . . .	. . . . .	. . . . .	Bombay . . . . .	. . . . .	2½ tons.
Sumach or shumach .	Rhus Coriaria . .	Anacardiaceæ	Sicily and the South of Europe.	For dyeing	350 tons.
French sumach . . . . .	. . . . .	. . . . .	Marseilles . . . . .	. . . . .	93 tons 15 cwt.
Fine ground Sicilian sumach.	. . . . .	. . . . .	Palermo . . . . .	. . . . .	93 tons 15 cwt.
Tyrol ground sumach .	. . . . .	. . . . .	Tricaste . . . . .	. . . . .	93 tons 15 cwt.
Garancine . . . . .	. . . . .	. . . . .	. . . . .	A dye formed by semi-carbonizing finely powdered madder with sulphuric acid at a temperature of 212°.	30 tons.
Dutch ground madder .	. . . . .	. . . . .	Rotterdam . . . .	. . . . .	270 tons.
French ground madder	. . . . .	. . . . .	Marseilles . . . . .	. . . . .	30 tons.
Spanish ground madder	. . . . .	. . . . .	Seville . . . . .	. . . . .	10 tons.

Subsection 6th, Tanning Materials.

Oak or tanners' bark (2 varieties).	Quercus (various species).	Corylaceæ .	Holland and Belgium.	For tanning leather .	514 tons.
Divi divi (3 varieties) .	Cæsalpina coriaria	Fabaceæ . .	Rio de la Hache, Savanilla, and Maracaibo.	. . . . .	. . . . .
Cork tree bark	Quercus suber . .	Corylaceæ .	Rabat . . . . .	. . . . .	160 tons.
Algarobilla	Prosopis pallida .	Fabaceæ . .	Valparaiso	A substitute for divi divi in tanning.	400 tons.
Valonia (3 varieties) .	Quercus egilops .	Corylaceæ .	Smyrna	A tanning material.	. . . . .
Myrobalans (2 qualities)	Terminalia chebula	Combretaceæ	Calcutta and Bombay.	For dyeing yellow and black colours.	851 tons.

Subsection 7th, Spices.

Cinnamon	Cinnamomum zeylanicum.	Lauraceæ . .	Ceylon and Madras	. . . . .	4 tons.
Cassia	Cinnamomum zeylanicum, var. Cassia.	Lauraceæ . .	China, &c. . . . .	. . . . .	21 tons.
Clove bark	Dicypellium caryophyllatum.	Lauraceæ . .	Brazil . . . . .	. . . . .	*
Ginger (3 varieties) .	Zingiber officinale	Zingiberaceæ	East and West Indies, and Sierra Leone.	. . . . .	24 tons.
Mace	Myristica moschata	Myristicaceæ	East Indies . . . .	. . . . .	*
Nutmegs (Cape and Penang).	Myristica moschata	Myristicaceæ	East India Island, Cape of Good Hope.	. . . . .	10 cwt.
Wild or shell nutmegs .	Myristica Madagascariensis.	Myristicaceæ	Madagascar.	. . . . .	. . . . .
Cloves	Caryophyllus aromaticus.	Myrtaceæ . .	Phillipine Island .	. . . . .	13 boxes.
Pepper (black and white, 4 varieties).	Piper nigrum . . .	Piperaceæ . .	East Indies . . . .	. . . . .	379 tons.
Pimento or Jamaica pepper.	Eugenia pimenta .	Myrtaceæ . .	West Indies.	. . . . .	. . . . .

Subsection 8th, Oil Seeds.

Niger seed	Verbesina sativa .	Asteraceæ . .	East Indies	Expressing oil	370 qrs.
Rape seed	Brassica napus . .	Cruciferae .	East Indies	Expressing oil	700 qrs.
Gingelli or sesamum seed.	Sesamum orientale	Pedaliaceæ .	East Indies	Expressing oil	3,700 bags.
Linseed (3 varieties) .	Linum usitatissimum.	Linaceæ . . .	East Indies, Egypt, and Russia.	Expressing oil	2,600 qrs.

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1850.
Poppy seed (2 varieties)	Papaver somniferum.	Papaveraceæ.	East Indies, Holland, and Germany.	Expressing oil and feeding small birds.	*
Marking nuts . . .	Semecarpus anacardium.	Anacardiaceæ	Calcutta . . .	Expressing oil, &c. . .	5 tons
Castor oil seeds . . .	Ricinus communis	Euphorbiaceæ	East Indies . . .	Medicinal oil . . .	*
Cotton seed . . .	Gossypium herbaceum.	Malvaceæ .	New Orleans . . .	Expressing oil . . .	*
Croton nuts, physic nuts	Jatropha curcas .	Euphorbiaceæ	Cape de Verd . .	Expressing oil . . .	*
Hemp seed (3 varieties)	Cannabis sativa .	Cannabinaceæ	Sicily, Holland, and Russia.	Expressing oil and feeding small birds.	130 qrs.
Mustard seed (brown) .	Sinapis nigra . .	Cruciferae .	Holland and the East Indies.	Expressing oil and grinding into flour mustard.	1,700 qrs.
Mustard seed (white) .	Sinapis alba . .	Cruciferae .	Holland and the East Indies.	Expressing oil and grinding into flour mustard.	1,700 qrs.

Subsection 9th, Agricultural Seeds.

Lucerne	Medicago sativa .	Fabaceæ . .	Hamburg. . . .	. . . . .	5 tons.
Timothy grass . . .	Phleum pratense .	Graminaceæ	United States . .	. . . . .	2½ tons.
Parsnip	Pastinaca sativa .	Apiaceæ . .	Germany . . . .	. . . . .	5 tons.
Italian rye grass . .	Lolium italicum .	Graminaceæ	Leghorn . . . .	. . . . .	4 qrs.
Canary seed	Phleum Canariense	Graminaceæ	Germany	Feeding birds . . .	320 tons.
Clover (American) .	Trifolium Pennsylvanicum.	Fabaceæ . .	United States . .	. . . . .	320 tons.
Clover (Dutch) . . .	Trifolium repens .	Fabaceæ . .	Rotterdam . . .	. . . . .	3 tons.
Millet seed	Panicum mliaceum.				

Subsection 10th, Dietetic Articles.

Sugar (30 varieties . .	Saccharum officinarum.	Graminaceæ .	East and West Indies, South America, &c.	. . . . .	108,952 tons.
Tea (18 varieties) . .	Thea viridis and Thea bohea.	Ternströmiaceæ.	China . . . . .	. . . . .	9,117,726 lbs.
Rice	Oryza sativa . . .	Graminaceæ .	United States and the East Indies.	. . . . .	4,156 tons.
Coffee	Coffea arabica . .	Rubiaceæ . .	East and West Indies and South America.	. . . . .	3,672 tons.
Wheat and wheat flour.	Triticum æstivum and hibernicum.	Graminaceæ .	Europe, North and South America, &c.	. . . . .	714,406 qrs.
Barley	Hordeum (2 or 3 species.)	Graminaceæ .	Europe . . . . .	. . . . .	38,613 qrs.
Oats	Avena sativa . . .	Graminaceæ .	Europe . . . . .	. . . . .	25,595 qrs.
Indian corn and meal	Zea mays	Graminaceæ .	Europe and North America.	. . . . .	497,186 qrs.
Peas	Pisum sativum . .	Fabaceæ . .	Europe . . . . .	. . . . .	19,022 qrs.
Beans (Egyptian) . .	Faba vulgaris . .	Fabaceæ . .	Egypt	Food for horses . . .	116,646 qrs.
Beans (American) . .	Phaseolus vulgaris	Fabaceæ . .	America . . . .	. . . . .	400 qrs.
Buckwheat	Fagopyrum esculentum.	Polygonaceæ.	Holland and Germany.	. . . . .	800 qrs.
Lentils	Ervum lens . . .	Fabaceæ . .	Egypt, &c. . . .	. . . . .	430 qrs.
Durra	Andropogon sorghum.	Graminaceæ .	Turkey	Feeding cattle, &c. .	130 qrs.

Subsection 11th, Vegetable Fibres, &c.

Cotton wool (40 varieties arranged; showing the country, variety, value per lb., and the staple).	Gossypium herbaceum.	Malvaceæ .	North and South America, Egypt, East Indies, West Indies, and Port Natal.	For weaving into cloths, &c.	322,605 tons.
Hemp	Cannabis sativa .	Cannabinaceæ	North of Europe, East Indies, and America.	Weaving and making cordage.	10,300 bales, say 5,000 tons.
Manilla hemp	Musa textilis . .	Palmaceæ .	East Indies . . .	Cordage	192 tons.
Jute	Corchorus capsularis.	Tiliaceæ . .	East Indies . . .	Cordage of inferior quality, matting, and even for adulterating silk.	12,216 tons.

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1854
Brasillian jute . . .	(?)	..	Para	Only a small quantity for experiment.	
Bengal hemp. . . .	Crotalaria juncea .	Fabaceæ .	East Indies . .	Coarse bagging. . .	81 tons.
Flax (Dutch, and Egyptian).	Linum usitatissimum.	Linaceæ .	Holland, Egypt, &c.	Weaving linen cloth .	423 tons.
Tow	The refuse of flax	..	Holland and Italy	Surgical purposes, stuffing, &c.	*
China grass	Biehmeria nivea .	Urticacæ .	Canton, &c. . .	Weaving fine linen .	320 bales.
Piassava or Piacaba .	Attalea funifera .	Palmacæ .	Brazil	Making brushes, &c. .	300 tons.
Coir (rope and yarn)	Cocos nucifera .	Palmacæ .	East Indies . .	Cordage	1,470 tons.
Vegetable silk . . .	Chorisia speciosa .	Malvacæ .	Brazil	Stuffing cushions, &c. .	*
Palm leaves and leaf fibres of the Carnianba palm.	Corypha cerifera .	Palmacæ .	Brazil	Imported for experiment	
Canes—					
Rattan	Calamus verus and others.	Palmacæ .	East Indies . .	Chair bottoms, &c. .	5,600 bundles
Partridge	Calamus niger (?)	Palmacæ .	East Indies and China.	Walking sticks, &c. .	1,300 canes.
Malacca	Calamus zalacca .	Palmacæ .	East Indies and China.	Walking sticks, &c. .	300 canes.
Bamboo	Bambusa arundinacea.	Graminacæ .	East Indies, &c. .	Principally for ships dunnage.	

Subsection 12th, Timber and Hard Woods.

St. John yellow pine .	Pinus variabilis .	Coniferæ .	Brit. N. America.	
Quebec yellow pine .	Pinus variabilis .	Coniferæ .	Brit. N. America.	
American spruce pine .	Abies rubra . . .	Coniferæ .	Brit. N. America.	
Quebec red pine . . .	Pinus resinosa .	Coniferæ .	Brit. N. America.	
Savannah pitch pine .	Pinus palustris .	Coniferæ .	South America.	
North American black birch.	Betula nigra . . .	Betulacæ .	North America.	
Quebec rock elm . . .	Ulmus Americana	Ulmacæ .	North America.	
New Orleans oak . . .	Quercus virens .	Corylacæ .	New Orleans.	
Quebec oak	Quercus alba . . .	Corylacæ .	Brit. N. America.	
Riga oak	Quercus robur . .	Corylacæ .	The Baltic Ports.	
African oak, or teak wood.	. . . . .	Euphorbiacæ	W. Coast of Africa	
Sabice (St. Domingo)	(?)	. .	St. Domingo.	
Sabice (Cuba)	(?)	. .	Cuba.	
Rosewood (Honduras)	Two or three undetermined species of Triptolomea.	} Fabacæ .	South America.	
Rosewood (Rio) . . .				
Rosewood (Bahia) . .				
Cedar (pencil)	Juniperus Virginiana.	Coniferæ .	North America.	
Cedar (Honduras) . .	Cedrela odorata .	Cedrelacæ .	South America.	
Satinwood (St. Domingo)	(?)	(?)	St. Domingo.	
Black wood, or East Indian teak.	(?)	(?)	Calcutta, &c.	
Gateado, or zebra . .	Omphalobium Lambertii.	Connaracæ .	New Zealand and Australia.	
Hemlock fir . . . . .	. . . . .	Coniferæ.		
Hackmatack . . . . .	. . . . .	Coniferæ.		
Locust	Hymenæa courbaril.	Fabacæ.		
Mahogany (Honduras)	Swietenia mahagoni	Cedrelacæ .	South America and West Indies.	
Mahogany (St. Domingo)	Swietenia mahagoni	Cedrelacæ .	South America and West Indies.	
Mahogany (Cuba) . .	Swietenia mahagoni	Cedrelacæ .	South America and West Indies.	
Honduras Brazillietto .	(?)	(?)	Honduras.	
(Said to be common Brazillietto deprived of its colouring matter. This is hardly probable).				
Tulip wood	(?)	(?)	East Indies.	
Lance wood	Duquetia quitarensis.	Anonacæ .	Guiana.	
Purple wood, or purple-heart.	Copaifera pubiflora	Fabacæ . .	Guiana.	
American ash	Fraxinus Americana.	Oleacæ . .	North America.	
Lignum vitæ	Guaiacum (Sp.?) .			
Russian black walnut .	Juglans (Sp.?) .	Juglandacæ.	Riga.	
Australian mahogany .	(?)	Eucalyptus (?)		
African tulip wood . .	(?)	. . . .	Africa.	
African yellow wood .	(?)	. . . .	Africa.	

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1850.
Bahama satin wood . . .	(?)		Nassau.		
Hickory wood . . .	Carya alba . . .	Juglandaceæ.	Brit. N. America.		
Cabbage wood . . .	Eriodendron an- fractuosum.	Sterculiaceæ.	Jamaica.		
Coromandel wood . . .	(?)		Coromandel.		
Tortoise wood . . .	(?)		Africa.		
Brazilian beef wood . . .	(?)		Para.		
Horse-flesh, or Bahama mahogany.	(?)		Nassau.		
Vinatica	Persea Indica . . .	Lauraceæ .	Madeira.		
Cocus, or kokra wood .	Lepidostachys Rox- burghii.	Scepaceæ .	Cuba.		
Brazilian satin wood, or Pao de Amarillo.	(?)	(?)	Para.		
Violet wood	(?)		Para.		
King wood	(?)		Para.		
Carnauba wood	Corypha cerifera .	Palmaceæ .	Para.		
Botany Bay oak	Casuarina (?) . . .	Cassuarinaceæ	New Holland.		
Angica wood	(?)		Ceara and Para.		
Blue gum wood	Eucalyptus Globu- lus.	Myrtaceæ .	New Holland.		
Bird's-eye maple	Acer saccharinum .	Acerinæ .	North America.		
Satin wood waved	Chloroxylon Swie- tenia.	Cedrelaceæ .	West Indies.		
Brazilian fancy wood . .	(?)		Para.		
Amboyna wood (4 va- rieties.)	(?)		East Indies.		
Green heart	Nectandra Rodiei .	Lauraceæ .	Demerara.		
Red wood	(?)		Para.		
Orange wood	Citrus aurantium .	Aurantiacæ .	Sicily.		
Palmyra wood (3 varie- ties).	Various species of palm.	Palmaceæ .	East Indies.		
Porcupine wood	A species of palm .	Palmaceæ .	East Indies.		
Russian birch	Betula Daurica . .	Betulaceæ .	Riga.		
Ebony (black)	Diospyrus ebenus .	Ebenaceæ .	East Indies.		
Ebony (variegated). . .	Diospyrus ebenus .	Ebenaceæ .	East Indies.		
Snake or letter	Piratinera guian- ensis.	Artocarpacæ	Guiana.		
Olive wood	Olea Europea . . .	Oleaceæ . .	Sicily.		
American walnut	Juglans nigra . . .	Juglandaceæ.	North America.		
Texican oak	Quercus Mexicana?	Corylaceæ .	Texas.		

IMPORTS OF TIMBER AND HARD WOOD IN 1850.

American pine timber	Cubic feet	5,652,213	Birch	Cubic feet	343,709
Red pine	Cubic feet	302,917	Quebec oak	Cubic feet	354,684
Quebec deals	Standard of 120	4,517	Quebec elm	Cubic feet	160,188
Pine and spruce planks (2 feet) .	Cubic feet	24,987,918	Quebec ash	Cubic feet	8,394
Boards	Cubic feet	501,874	Pitch pine	Cubic feet	30,404

Baltic Timber.

Timber	Cubic feet	399,255	Billet (wainscot).	BILLETS	1,109
Beams	Standard of 120	1,246	Staves	Standard of 1,200	50
Battens	Standard of 120	266	Lathwood	Fathoms	708
Poles and spars	Cargoes	2			

American Worked Timber.

Masts and spars	Pieces	171	United States staves	Standard of 1,20	1,219
Ash oars and handspikes	Pieces	14,309	Lathwood	Fathoms	950
Quebec staves	Standard of 1,200	225	Railway sleepers	Pieces	22,346
New Brunswick, &c., ash Loghouse staves	Standard of 1,200	101			

Hard and Fancy Woods.

Mahogany	Tons	6,812	Teak	Feet	131,976
Cedar	Feet	149,330	Greenheart and Mora	Feet	74,834
Bird's-eye maple	Planks	417	Sabiceæ	Logs	7
Zebra wood	Planks	178	Lignum vita	Tons	1,770
Satin wood	Logs	210	Ibony	Tons	350
Rosewood	Planks	7,807	Cocus wood	Tons	96
Lancewood	Spars	10,633			

COMMERCIAL NAME.	Scientific Name, or Designation.	Class or Order.	Whence Imported.	Uses, &c.	Imports, 1854.

Subsection 13th, Miscellaneous.

Hops	<i>Humulus lupulus</i>	Cannabinaceæ	North America . . .	For brewing beer . .	37 tons.
Rushes	<i>Scirpus lacustris</i>	Graminaceæ .	Holland	Used by coopers.	

Subsection 14th, Tobacco.

Dutch.	<i>Nicotiana</i> (Sp. ?)	Solanaceæ .	Java	Smoking	<div> <div>Total quantity imported in 1850, 25-316 tons, 131 tons.</div> </div>
Maryland.	<i>Nicotiana tabacum</i>	..	New Orleans . . .		
Kentucky (2 varieties). . . . .	..	..	New Orleans . . .
Virginia (2 varieties) . . . . .	..	..	New Orleans . . .
Havannah	<i>Nicotiana repanda</i>	..	Cuba		
Cuba . . . . .	..	..	Cuba
Yara . . . . .	..	..	Cuba
La Guayra . . . . .	..	..	South America . . .
Paraguay . . . . .	..	..	South America . . .
Columbian . . . . .	..	..	South America . . .
Ipala . . . . .	..	..	South America . . .
Manilla	<i>Nicotiana rustica</i> .	..	East Indies		
German . . . . .	..	..	Hamburgh
Turkish	<i>Nicotiana paniculata</i> .	..	Turkey		
Latakia	<i>Nicotiana rustica</i> .	..	Syria		
Chinese	<i>Nicotiana sinensis</i>	..	.. . . .
Manufactured—					
Cigars.					
Roll (Varinas).					
Roll (Brazil).					
Cavendish.					
Negro-head.					

Subsection 15th, Feculas.

*Tapioca (Rio)	<i>Janipha manihot</i> .	Euphorbiaceæ	Rio de Janeiro . . .	Food	700 tons.
*Tapioca (Bahia)	<i>Janipha manihot</i> .	Euphorbiaceæ	Bahia	Food	120 tons.
*Cassava powder	<i>Janipha manihot</i> .	Euphorbiaceæ	Brazils	Food	Small.
*Farinha	<i>Janipha manihot</i> .	Euphorbiaceæ	Brazils	Food	300 tons.
Sago (Borneo)	<i>Sagrus levis</i> . . .	Palmaceæ .	Borneo	Food	Small.
Sago (granulated)	<i>Saguerus Rhumphii</i>	Palmaceæ .	Calcutta	Food	78 tons.
Sago (pearl)	<i>Saguerus Rhumphii</i>	Palmaceæ .	Calcutta	Food	425 tons.
Sago (flour)	<i>Saguerus Rhumphii</i>	Palmaceæ .	Calcutta	Food	225 tons.
Arrow root (St. Vincent)	<i>Maranta arundinaceæ</i> .	Cannaceæ .	St. Vincent, West India Islands.	Food	50 tons.
*Brazilian arrow root	<i>Janipha manihot</i> .	Euphorbiaceæ	Brazils	Food	7 tons.
Farinha (potato)	<i>Solanum tuberosum</i>	Solanaceæ .	France, Holland, and Germany.	Dressing textile fabrics	160 tons.
Dextrine	Starch acted upon by sulphuric acid and water at a temperature of 200° Fah.	..	.. . . .	.. . . .	..

* These articles are all formed from the same plant, the Rio Tapioca is the best ; and Farinha or Mandioca is the lowest quality.

CLASS B.—Section 1st, Metallic.

COMMERCIAL NAME.	Scientific Name.	Whence Imported.	Uses.	Imports, 1850.
Copper	Cuprum	South America, Australia, &c.	Various	450 tons.
Nickel	Nickel	Hamburgh	Making German silver &c.	20 tons.
Bismuth	Bismuth	Germany	Making type metal, solder, &c.	10 cwt.
Antimony	Antimonium	Germany	Type metal, pewter, &c.	4 tons.
Tin	Stannum	Malacca and Banca, viâ Calcutta.	Various	70 tons.
Lead	Plumbum	Malaga, Spain, &c.	Various	200 tons.
Iron and steel	Ferrum	Russia, Sweden, Trieste, and North Brunswick.	Various	1,100 tons.

NORTH TRANSEPT GALLERY.

COMMERCIAL NAME.	Scientific Name.	Whence Imported.	Uses.	Imports, 1880.
Zinc or spelter	Zincum.			
Antimony ore	Sulphuret of antimony	Germany	Smelting for antimony. . .	70 tons.
Copper ores.	Sulphuret of copper .	South America and Australia.	Smelting for copper . . .	14,030 tons.
Copper ores.	Carbonate of copper (green).	South America and Australia.	Smelting for copper . . .	14,030 tons.
Copper ores.	Carbonate of copper (blue).	South America and Australia.	Smelting for copper . . .	14,030 tons.
Copper ores.	Muriate	South America and Australia.	Smelting for copper . . .	14,030 tons.
Copper regulus	The ore deprived of its sulphur by roasting.	South America . . .	Smelting for silver . . .	750 tons.
Copper barilla	The ore deprived of its sulphur by roasting, and powdered.	South America . . .	Smelting for silver . . .	750 tons.
Silver ores (3 varieties)	Sulphuret of silver. .	South America. . .	Smelting for silver . . .	750 tons.
Red arsenic.	Arsenicum bisulphuretum.	Holland	As a pigment, &c. . . .	3 tons.
Lead ore.	Galena, sulphuret of lead	Australia and North America.	Smelting for lead	250 tons.
Oxide of manganese (2 varieties).	Peroxide of manganese or pyrosulite.	Germany, Spain, &c. .	Calico printing and glass manufactures.	2,300 tons.
Chromate of iron (3 varieties).	Chromic iron or chromite.	United States, Sweden, Russia, &c.		
Cobalt ore	Smaltine	Norway and Germany	Making smalts, &c. . . .	100 tons.

Section 2nd, Non-Metallic.

Marbles—				
Italian Bardiglio . . .				
American Bardiglio . .				
White statuary				
Veined statuary. . . .				
Black and gold				
Sienna				
Belgian brown				
Italian dove coloured .				
St. Ann's (Belgian), and 3 other varieties.				
Fancy marbles are not often imported; the total quantity of all sorts is about 600 tons per annum.				
Phosphate of lime . . .	Phosphurite.	New Jersey	As a manure	3 tons.
Burr stone	Mill stone grit	France	For making large millstones	500 tons.
Barytes (carbonate) . .	Witherite	New York	Manufacture of chloride of barium.	20 tons.
Barytes (sulphated) . .	Hepatite.	New York	Making pigments	*
Felspar	Orthose	New York and the Mediterranean.	Porcelain manufactures . .	120 tons.
Talc	Silicate of magnesia . .	Calcutta	Various	3 tons.
Plumbago or black lead (5 varieties).	Graphite	North America, Germany, and Ceylon.	Various	536 tons.
Amber	Succinum	Memel	Ornamental and pharmaceutical purposes.	*
Asphalt or asphaltum .	Bitumen var. asphalt .	New York	Paving, &c.	70 tons.
Emery (3 varieties) . .	Granular corundum . .	Naxos, Smyrna, and Australia.	For polishing metals . . .	1,200 tons.
Pozzolano	Puozzolana, a volcanic product.	Leghorn, Naples, &c. .	Cement	400 tons.
Pumice stone	Spongy obsidian	Naples, Palermo, &c. .	Polishing	7 tons.
Brimstone	Sulphur	Palermo, Messina, &c.	Making gunpowder, matches, &c.	10,650 tons.
Brazilian pebbles . . .	Rock crystal	Rio de Janeiro . . .	Spectacle and other optical instruments.	*
Aqua marine	Silicate of alumina and glucine.	Rio de Janeiro . . .	Jewellery.	*
Oriental topaz	Silicate of alumina . .	Rio de Janeiro . . .	Jewellery.	*
Chrysolite	Silicate of magnesia and iron.	Rio de Janeiro . . .	As a substitute for diamonds in jewelling watches.	32,924 carats.
Amethyst	Amethystine quartz . .	Rio de Janeiro . . .	As a substitute for diamonds in jewelling watches.	*
White topaz . . . . .	. . . . .	Rio de Janeiro . . .	As a substitute for diamonds in jewelling watches.	*
Brazilian topaz.	Fluo-silicate of alumina.	Rio de Janeiro . . .	As a substitute for diamonds in jewelling watches.	15 cwt.
Cream of tartar (5 varieties).	Potassæ bitartras . . .	Italy, Spain, France, &c.	Manufacture of tartaric acid, &c.	210 tons.
Argols (5 varieties) . .	Impure bitartrate of potash.	Italy, Spain, France, &c.	Manufacture of tartaric acid, &c.	600 tons.
Turkey umber	A silicate of alumina combined with oxides of iron and manganese.	Smyrna and Leghorn .	Pigment	7 tons.

COMMERCIAL NAME.	Scientific Name.	Whence Imported.	Uses.	Imports, 1856.
Sienna earth (2 varieties)	An argillaceous earth dried.	Leghorn, &c. . . .	Pigment	13 tons.
Verdigris	Cupri subacetate	France	Pigment, &c.	5 tons.
Thinal	Impure biborate of soda	Calcutta	For making borax	453 tons.
Borax	Sodæ biboras	Calcutta	Used in the manufactures of glass and pottery.	30 tons.
Boracic acid	Acidum boracicum	Leghorn	Used in the manufactures of glass and pottery.	850 tons.
Hydroborate of lime . .	Ileyescine	Peru	Used in the manufactures of glass and pottery.	*
Alum	Alumen	China	Chemical	*
Yellow prussiate of potash	Ferrocyanide of potassium.	Havre	Calico printing	7 cwt.
Turkey stone	Hornblende	Constantinople	Making bones, &c. . . .	*
Mineral water or seltzer water.	. . . . .	Germany, Holland, and Belgium	Drinking	400 gallons.

272 ALCOCK, STEPHEN BOLTON, & Co., *Dublin Blacking Works*—Manufacturers.
Sample of liquid blacking.

274 MITCHELL, REV. WILLIAM, *Woolwich, Kent*—Inventor.

Buffer and horn of a bull, with iron frame, and stuffed buffer attached, with motto, in eleven different languages.
The goring oxen buffer has been invented to prevent the numerous accidents which arise from driving infuriated animals through the crowded streets. The buffer is stuffed with soft material, similar to the balls formerly used by printers, or boxing-gloves, to which is attached a spring, that recoils on pressure. This buffer is fastened to a strong piece of iron, having two rings to slip on to the horns, and a small screw-bolt on one side that fixes it firmly in its place.

The somniferous electric brush, for producing sleep to invalids and others.

275 WESTHEAD, J. P., and E. & Co., *Manchester*—Manufacturers.

Patent Astoria cloth, manufactured of hare's fur.
Bell-ropes; curtain-holders; fringe, with hangers; Jacquard bell-rope; spangle orris lace, quite new; Jacquard cord and flat Jacquard braid.

Pattern-book of general smallwares:—Cotton work-box, furnished; furnishing gimps; India tapes; imperial, or best cotton; and thread tapes.

Carpet and bed lace; float and Queen's lace, in plain and chintz; patent cotton velvet; amber curtain holders.

277 LUCAS, GEORGE, 42 *Kennedy Street, Manchester*—Inventor and Manufacturer.

Brass and zinc "cerantistate" door, window, and sign-plates, engraved by machinery. The engraved part filled with a composition of any colour, or inlaid with other colours, to resist the action of the atmosphere.
Designs for letters, plates, doors, windows, &c.

278 ESDAILE, JAMES, *Elm Place, Hulme*—Inventor and Manufacturer.

Sheets of hat-felt, made by hand, from rabbit's fur and fine Saxony lamb's wool, used by printers of calicoes, silks, woollens, &c., being inserted into the blocks and cylinders to convey the colouring matter to the cloth.

Sheets of woollen-felt, for polishing plate-glass, marble, ivory, tortoiseshell, bone, &c.

Felted gloves, or hand-hats, fire-proof, and non-conductors of heat, used by glass-blowers, iron-founders, and others. Felted rustic hats.

280 SMITH, W. & A., *Mauchline, Ayrshire, Scotland, and 61 Charlotte Street, Birmingham*—Manufacturers.

Variety of articles of Scotch fancy wood work, made chiefly of the wood of the sycamore tree: consisting of snuff-boxes, cigar-cases, card-cases, card-trays, writing-

folios, books bound in wood, candlesticks, &c., ornamented in different styles.

Snuff-boxes, in various stages of progression. The "Scotch hinge" is applied to many of these articles.

By the style called "checking," a great variety of diapered patterns are produced, particularly the imitation of the clan tartans of Scotland.

By the style called "Scoto-Russian," an imitation of engine-turned lines, inlaid with silver, is produced, and the ornament, being secured by copal-varnish, is not liable to become tarnished.

281 COCKERILL, ROBERT, *Banbury*—Manufacturer.

Liquid and paste blacking, for boots, shoes, and harness. Liquid dye for harness. Polishing paste for metals. Black and red writing ink.

282 EASTERLING, JOHN, 90 *Whitecross Street, St. Luke's*—Manufacturer.

Currie paste and powder. Essence of anchovies. Invigorating sauce. Anchovy and bloater paste.

285 WOOD, P. H., 20 *Redman's Row, and Assembly Place, Mile End*—Manufacturer.

Refining powder for coffee, and colouring for soups, gravies, &c.

286 COCKS, E., *Reading*—Manufacturer.

Specimens of Reading and other sauces.

287 DUTTON & Co., *Runcorn, Cheshire*—Manufacturers.

School slates, manufactured by machinery, framed in mahogany and bird's-eye maple. Book slates. Single slate.

289 MALLALIEU, WM., 97 *Hutton Garden*—Importer.

Models of dwellings and implements made by the Esquimaux, at the Moravian settlements on the coast of Labrador, North America.

1. A winter house. 2. A snow hut. 3. A bone sledge and dogs. 4. A wooden sledge and dogs. 5. A bone kayak, and fishing implements. 6. A skin kayak, and fishing implements. 7. A woman's boat. 8. Models of reindeer, bears, seals, dogs, and birds. 9. Bone paper knives. 10. Mats and baskets, made of grass. 11. Specimens of needlework. The bone articles are made from the teeth of the walrus.

290 LOCAL COMMITTEE, *Hull*—Producer.

Specimens of the staple imported articles of the port of Hull, accompanied with the following description and statistical information.

[Hull is reckoned the fourth city in England in point of commercial importance. Its trade is chiefly with the Baltic; in the whale fishery; and by inland communication. It is very conveniently situated for traffic with

the Continent, and its imports are chiefly of continental produce, as the adjoining tabular view will show. Flax, iron, and wool, as they are the most useful, appear also to be the principal imports.]

Alkanet Root	60 cwt.	Mazarian Root	35 cwt.
Angeliem Root	50 "	Millet Seed	50 qr.
Aniseeds	60 "	Moss, Iceland	430 cwt.
Arrow Root	50 "	Mustard Seed	1,000 "
Arsenic	100 "	Myrabolams	1,600 "
Asphaltum	50 "	Nickel	50 "
Barley	292,000 qr.	Oak Bark	31,300 cwt.
Bay Berries	120 cwt.	Oats	42,000 qr.
Beans	88,000 qr.	Olive Oil	3,500 tons
Black Lead	8,300 cwt.	Onion Seed	50 cwt.
Bran	11,300 "	Oss Sepia	30 "
Brimstone	650 tons.	Paper, Ornamental	
Bristles	2,200 cwt.	Peas	46,000 qr.
Bronze Powder	310 lb.	Pepper	3,800 cwt.
Camphor	60 cwt.	Pitch, Burgundy	120 "
Canary Seed	250 qr.	Poppy Heads	65 "
Cantharides	2,500 lb.	Poppy Seed	80 "
Caraway Seed	950 cwt.	Prussiate of Potash	560 cwt.
Chamomile Flowers	560 "	Potato Flour	25,000 "
Chicory Root	5,000 "	Rape Cake	4,500 "
Clover Seed	22,000 "	Rape Oil	780 tons
Codilla	1,100 "	Rape Seed	25,000 qr.
Coffee	2,400 "	Rice	7,200 cwt.
Colchicum Root	30 "	Rose Leaves	1,240 lb.
Coppers, White	1,000 "	Rosin	2,000 brls.
Coriander Seed	100 "	Rye	8,500 qr.
Cork	940 "	Rye Meal	15,500 cwt.
Cumin Seed	30 "	Saltpetre	2,000 "
Feathers	200 "	Sesamum Seed	15,000 qr.
Flax	310,000 "	Shumac	14,000 cwt.
Fenugreek Seed	90 "	Silk, raw	95 "
Gambier	450 "	Slate Pencils	1,500 "
Gentian Root	210 "	Smalts	520 "
Glass Beads and Bubles	150 "	Spelter	1,100 tons
Glue	1,150 "	Stavesacre	94 cwt.
Grains Paradise	50 "	Sugar, Candy	200 "
Guano	4,300 tons	Sugar, Loaf	1,500 "
Hair, Cows'	1,250 cwt.	Sugar, Raw	4,000 "
Hair, Horse	180 "	Tallow	51,000 "
Hellebore Root	70 "	Tares	6,500 qr.
Hemp	55,000 "	Toy Marbles	1,600 cwt.
Hempseed	450 qr.	Ultramarine	4,200 lb.
Honey	1,800 cwt.	Valerian Root	230 cwt.
Iron Bars	22,000 tons	Valonia	3,900 "
Iron Bloom	500 "	Verdigris	46 "
Juniper Berries	250 "	Vinegar	4,200 gall.
Lead Pencils	3,200 gross	Wax, Bees'	40 cwt.
Lead, Sugar of	54 cwt.	Whalebone	20 tons
Linen Rags, Pulp of	150 "	Whale Oil	400 tons
Linseed	322,000 qr.	Wheat	268,000 qr.
Linseed Cake	10,250 cwt.	Wheat Flour	4,300 cwt.
Liquorice Root	100 "	Wool, Cotton	96,000 "
Madders	18,000 "	Wool, Sheep's	12,524,000 lb.
Madder Roots	500 "	Worm Seeds	20 cwt.
Maize	2,100 qr.	Worsted Yarn, for	25,000 lb.
Manna Kroup	70 cwt.	Embroidery	
Manganese Ore	2,000 "	Yeast, dried	3,400 cwt.
Matches	50,000 gross	Zaffers	280 "
Mazarian Bark	30 cwt.		

291 BARTLETT, ABRAHAM DEE, 16 Great College Street, Camden Town—Preserver.

A life-sized model of the dodo. This extinct bird was formerly very abundant on the island of Mauritius.

[*Dafus ineptus*, Linnæus. The bird which has here been restored from the most authentic portraits extant, was formerly a native of the island of Mauritius, where it was discovered by Vasco di Gama, in 1497. The species was found there in abundance by the Dutch, between the years 1598 and 1600, soon after which it appears to have become extinct. A stuffed specimen, which formed part of Tradescant's Museum in 1600, passed, with the rest of the collection, into the hands of Dr. Ashmole, and was transferred by him to the University of Oxford, where it was destroyed in 1755, with the exception of the dried head and one foot, which are still preserved.

The foot of another specimen is in the British Museum. From the shortness of the wings, which were inadequate for the purposes of flight, most naturalists have classed the dodo with the cassowary and other struthious birds; some have supposed it to be a kind of vulture; others, a sort of dove. It is the type of a distinct family, the

peculiarity of which may be estimated by the discrepancy of opinions respecting its affinities.—R. O.]

Dog and dead game, to illustrate the art of taxidermy in representing life and death.

Arctic foxes (killed at the same season); this group is a striking illustration of the fallacy of the opinion that extreme cold causes the arctic fox and other animals to become white.

Javanese musk deer and young. Male monaul (*Lophophorus imphyranus*). A parrot (*Psittacus Leodbeateri*).

Models of eyes for stuffed animals, on a new principle.

A leopard (*Felis leopardus*), with the eyes constructed on this principle.

292 WITHERS, W., *Devizes, Wilts*—Proprietor.

Case of stuffed birds (partridges).

293 BESSANT, MARIA, 5 Union Street, New Bond Street—Manufacturer and Proprietor.

Fancy pincushions; match boxes; porter in his lodge; cradle, &c., manufactured from common egg-shells.

[The employment of egg-shells for ornamental purposes is extremely ancient. A MS. in the Harleian collection represents a number of egg-shells ornamented in the most elegant and costly manner; miniatures were often painted upon them with extreme care, and egg-shells thus curiously decorated became valuable and highly esteemed presents. In Venice, young noblemen frequently lavished large sums of money upon portraits painted within egg-shells, intended as presents.—R. E.]

295 JAMES, JOHN, *Victoria Works, Redditch, Worcestershire*—Manufacturer.

Glass case, containing every description of needles and fish-hooks. Needle-boxes and needle-books.

Sole inventor and manufacturer of the unique locomotive needles.

297 CHAMBERS, R.—Manufacturer.

Specimens of pins and needles.

301 HERBERT, SARAH, 20 Royal Avenue Terrace, Chelsea—Inventor.

Chepstow Castle, Monmouthshire, by moonlight. Specimen of papyrography, a novel method of representing landscapes, &c., in paper, by the use of the scissors only.

302 RANKIN, EMILY, & LEAR, ELLEN, *South Street, Wandsworth*—Designers & Manufacturers.

Picture frames of ornamental leather work.

303 PRIDEAUX, Miss, *Wellington, Somerset*—Producer.

A small basket of rice-paper flowers, cut out with scissors.

304 HARRISON, MARGARET, 19 Bromley Street, Commercial Road East—Producer.

Victoria Regia—wax.

Orchiderus—wax.

305 BARLING, BENJAMIN, & SONS, 142 High Street, Camden Town—Designers and Manufacturers.

1. Silver-mounted meerschaum smoking pipe, chased, engine-turned, and engraved top, oak border. Design: A fox and leveret. Motto: "Not caught yet."

2. Silver-mounted smoked meerschaum pipe, chased silver. Design: A chamois.

3. Silver-mounted meerschaum pipe. Engine-turned, chased, and engraved. Design: A pointer dog and bird.

4. Silver-mounted meerschaum pipe. Design: The oak and dolphin (chased).

5. Plain silver-mounted meerschaum.

6. Large silver-mounted meerschaum courier pipe, pierced and engraved top.

7. A small one, engine-turned top, and chased edge.
8. Another small one, plain polished
All with the registered latch mount, which revolves on a pin.

305A GIBBS, DAVID & WILLIAM, City Soap Works—
Inventors and Manufacturers.

Perfumed patent Exhibition and inlaid cameo soaps. Naples shaving tablets. Pearl white soft soap. Neutral white soft soap, used by woollen and silk manufacturers for their finest goods. Soap used chiefly by silk dyers to give gloss and brilliancy to their colours. Black soft soap, used for scouring coarse wools and carpets.

[The admirable researches of M. Chevreul have furnished us with accurate ideas as to the true nature of soaps. They are true chemical compounds of fatty acids with the alkalies, potash or soda. Purity of the ingredients is essential for the finer sorts of soaps, but the commoner are made of all kinds of fatty substances.—R. E.]

306 MORLAND, J., & SON, 50 Eastcheap, London Bridge—
Manufacturers.
Specimens of umbrellas and parasols.

307 ADAIR, B., Workington—Manufacturer.
Specimens of hair watch guards.

308 BARRETT & SON, Beech Street, Barbican—
Producers.
Glass's patent machine for sweeping chimneys.

309 BUBCH, C. & SON, 32 Platt Terrace, St. Pancras Road—Manufacturer.

Solid rosewood box, glass top for ornamented pencils, embellished with projecting brass ornaments and screws of the Elizabethan style. The pencils are stamped in gold and silver with various devices.

311 PEARCE, T. B., Newnham Street, Oxford Street—
Inventor.

Self-acting fishing-rod, by which many lines can be used at the same time. This invention is also applicable for sea-fishing, with a variety of newly-invented fishing tackle, &c.

312 AGGIO, GEORGE H., Colchester—Designer and
Manufacturer.
Ottoman, novelty in work and pattern.

313 HODGE, W., 34 Great Marlborough Street, St. James's—
Manufacturer.
Victoria cabinet writing-case, in morocco, ornamented. Album, in ornamental morocco leather.

315 STIRLING, THOMAS, sen., Bow Bridge Slate Works, Stratford, Essex, and 38 New Broad Street, City—
Inventor and Manufacturer.

Economic slate pig-feeding trough, so constructed as to keep each animal's food distinct.

Slate trough for pickling meat, which, by its coolness and impermeability, keeps the brine sweet for a long period.

Enamelled slate chimney-piece, capable of being made of any size or pattern.

Chess and other table tops, of the same material, is imitation of inlaid marbles, and ornamented.

Slate inkstand, ornamented and enamelled.

Slate paste-table and rolling-pin, recommended for gloss, coolness, sweetness, and cleanliness.

Slate milk-pan, cooler than metal, earthenware, &c.

Samples of patent steam fuel.

[The useful application of slate to various domestic and ornamental purposes is due to the present exhibitor. Many years ago he first introduced his self-acting and rapid ascension water-filters, which have been so generally imitated, and which have been so successful in their application. Soon afterwards he introduced the enamelled and ornamented slate for table-tops, trays, inkstands, finger-plates, and various other ingenious and useful purposes, which have also been very generally and successfully imitated. As these applications have not been secured by patent to the original inventor, it is proper that he to whom they are due should not be forgotten in a notice of the articles now exhibited. Some of the specimens of the ornamented slate-table tops seem to vie with those of the celebrated French porcelain, and they are certainly neither so brittle nor so expensive. For numerous domestic purposes, especially where liquids are concerned, it is quite manifest that slate is vastly superior to iron, tin, or zinc; and with care as to mere breakage, it will last an indefinitely longer time.—R.W.]

316 LUCAS BROTHERS, 113 Aldersgate Street—Inventor.

Lozenges, ornamentally stamped, representing the name of the lozenge on one side, and on the reverse that of the vendor, with the quantity of medicine each lozenge contains.

317 COCKS, JOHN & CHARLES, 6 Duke Street, Reading—
Inventors and Manufacturers.
Samples of genuine Reading and Old England sauces.

318 WALKER, J., 56 Shaftesbury Street, New Road—
Designer and Manufacturer.

London grown flowers, dried, and retaining their natural colours, forming patterns in a maple frame for ornamental decoration, &c.

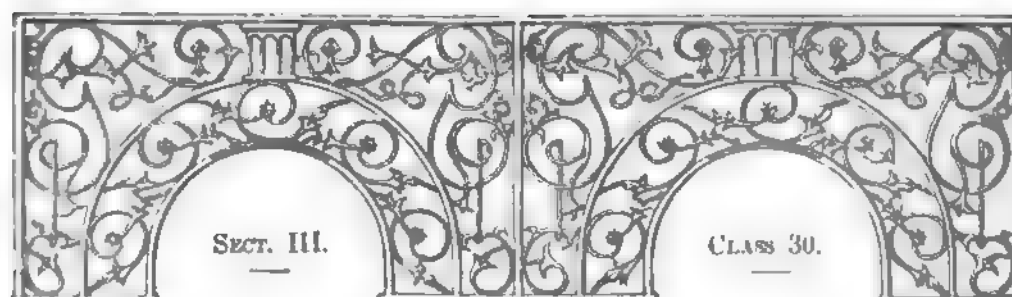
319 SCHRADER, MISS H., 4 Windsor Terrace, Old Kent Road.

Beaded purses, head-dresses, &c.

320 HANCOCK, J. A.—Producer.

A collection of stuffed birds and animals.

(In North Transept.)



SCULPTURE, MODELS AND PLASTIC ART, MOSAICS, ENAMELS, ETC.

INTRODUCTION.

THE Exhibition having relations far more extensive with the industrial occupations and products of mankind than with the Fine Arts, the limits of the present Class have been defined with considerable strictness. Those departments of art which are, in a degree, connected with mechanical processes, which relate to working in metals, wood, or marble, and those mechanical processes which are applicable to the arts, but which, notwithstanding this, still preserve their mechanical character, as printing in colour, come properly within this Class. Paintings, as works of art, are excluded; but, as exhibiting any improvements in colours, they become admissible. When admitted, they are to be regarded not so much as examples of the skill of the artist, as of that of the preparer of colours. The admission, however, of objects included under the definition "plastic art," has greatly tended to relieve the general aspect of the Exhibition; and their happy and judicious arrangement in the great structure forms one of its most interesting features.

The following Sub-Classes will convey a good general impression of the interesting nature of the objects contemplated under the general terms of Sculpture, Models, and Plastic Art:—A. Recognises Sculpture as a fine art, whether in metals, simple or compound, in minerals, woods, and animal substances, as Ivory, Cameos, &c.; B. Works in Die-sinking, Intaglios, as Coins and Medals, Impressions from Medals, Gems, and Seals; C. Architectural Decorations, integral and adventitious; D. Mosaics and inlaid works in Stone, Tiles, Wood, Metal, &c.; E. Enamels on Metals, China, and Glass; F. Materials and processes applicable to the Fine Arts generally, including Fine Art Printing, Printing in Colours, &c. Of these, as examples, may be mentioned Encaustic Printing, Ornamental Printing, Chromo-lithography, &c., Zincography, and other modes of Printing; G. Models in Architecture, Topography, and Anatomy.

The space in the Building allotted to the objects in this Class is, in addition to that occupied in the Transept and Main Avenues, in two parts of the structure. The Fine Art Court, as it is generally known, is on the North side of the Western Main Avenue, separated from the Transept by the Indian collection, and from the Main Avenue by the articles forwarded from the Channel Islands, Ceylon, and Malta. The Areas here occupied are F. 30 to 32; G. and H. 28 to 32; and I. and J. 28, 29, and 32. The Sculpture Court is in the south of the Main Avenue West, from which it is separated by the Hardware and Mediæval Court; as its name implies, it is exclusively devoted to Sculpture. In the Fine Art Court are grouped together all the other objects representative of the above substances. In the Transept and Western Main Avenue are placed a large number of objects of Sculpture which, from their size, or peculiar fitness for such a position, have not been placed with other specimens of a similar kind in the Sculpture Court.

Sculptures, for obvious reasons, are removed, by their character, from notice in this Introduction. Among the works in die-sinking, attention will be attracted to a collection of the great official seals which affix the emblems of public sanction to national documents. The production of these seals is extremely costly and tedious, and the art they illustrate is one not less demanding the skill of the designer than the nicety and precision of manipulation of the engraver. Methods of producing such seals more economically, and of multiplying them, are exhibited. The application of automatic machinery to this art is of modern introduction. The models for the obverses of the Great Exhibition prize medals are also found in this Court. Some interesting specimens of glass and wood mosaic are also deserving of attention. The brilliancy of the colours of the former material appears to render it very suitable for this purpose. A practical inconvenience, however, often arises from the difficulty of securing the permanent adhesion of the glass to the foundation, which in the instances exhibited appears to have been overcome.

The beautiful art of enamelling is exceedingly well illustrated in this Class by objects of the highest value. The peculiar and difficult processes of manipulation necessary in this art, added to the necessity for skilful treatment of the subject to be painted, render it an occupation confined to a few. Extreme uncertainty often attends the results of the firing through which every enamelled picture has to pass; but, when every step has been successful, and the painter's talent has equalled his skill in manipulation, the result is extremely beautiful and enduring. The most rare metals are often employed in the colours of enamel painting. The material on which the best enamels are painted is gold.

Wonderful progress has been recently made in the art of printing in colours. A most instructive series of these productions is exhibited. Some of them are so arranged as to exhibit the successive stages through which the print passes, until it is completed in all the colours of an original painting. Steel, wood, and stone, form the materials by which the greater portion of the chromatic prints exhibited have been produced. The characters of the impressions from these surfaces are extremely opposed to each other. Those printed in

- 148 **POWELL, J.**, *Trentburn, Newcastle-under-Lyme*—
Producer.

Model of the house in which Shakespeare was born at Stratford-on-Avon, as it now exists, 1851, made of oak and plaster of Paris.

- 149 **WEBBER, JOHN**, *Cafe Castle*—Mason.

Design for a tomb in Purbeck stone, on a slab of Purbeck marble.

- 151 **WEIR, JOHN**, *54 High Street, Edinburgh*—
Maker.

Correct model of John Knox's house, and part of High Street, Edinburgh, principally of wood, and painted so as to resemble the original.

- 152 **ASHTON, WILLIAM**, *154 Stone Street, Chelsea*—
Producer.

Model elevation of the exterior of the parish church of St. James, Louth, Lincolnshire. Executed by the exhibitor in Bristol card board, with a pen-knife.

- 153 **WEBBER & BARTLETT**, *Bridge Street and St James' Street, Tinsley*—Proprietors.

Model of a cathedral, carved in oak.

- 154 **MALING, —**, Producer
Design for a font.

- 156 **BEAUCLEUC, G.**, *21A Grosvenor Street West*—
Producer.

Specimens of sculpture. Statuettes in Irish clay.

- 157 **BALL, ROBERT, LL.D.**, *University Museum, Dublin*—
Designer.

Model, being a restoration of the ancient harp, commonly called the harp of Brien Boroihme (Brien Baru) king of Ireland, preserved in the University Museum, Dublin. This restoration is made in the hope of inducing artists to adopt it as a model for emblematical devices relating to Ireland. It is certainly the oldest existing Irish harp; it is supposed to have been figured on the coins of Henry VIII., and in the mutilated state



Ball's Restored Brien Baru's Harp.

in which it long remained, it gave origin to the curt and inelegant form not unfrequently used in jewellery, &c.

It is now restored to the graceful form it originally possessed, and its elaborate carving has been carefully and accurately restored. The preceding cut represents the harp.

- 158 **STEVENS, GEORGE HENRY**, *Stafford Row, Piccadilly*—
Designer and Manufacturer.

Pair of candelabra, manufactured in Kean's cement, in imitation of marble, and inlaid with glass mosaic.

Specimen in glass mosaic, of heraldic decoration, to illustrate the working of crests, coats of arms, and of geometrical patterns. This specimen is represented in the Plate 130.

Glass mosaic table-top, on gilt stand, inlaid with mosaic statuary. Marble table-top, on carved walnut-wood stand, both inlaid with mosaic.

- 159 **BRODIE, WILLIAM**, *North Street, Andrew Street, Edinburgh*—Designer and Producer.

Group in plaster, "Little Nell and her Grandfather."—See Dickens' "Old Curiosity Shop." Intended for execution in porcelain or bronze.

- 160 **DIGHTON, THOMAS DIBDIN**, *2 Great College Street, Westminster*—Producer.

Model of part of the Record Office, in the process of erection, from the designs of James Pennethorne, Esq.

- 161 **MONTFIORE, SIR MOSES, Bart.**, *Grosvenor Gate, Park Lane*—Proprietor.

Two vases carved out of a species of sandstone of Jerusalem, with an ordinary pen-knife, by Mordekhay Schnitzer, an Israelite of that city; height 2ft. 4in. and 2ft. 7in. respectively.

These vases display rich and intricate arabesque carvings, consisting of fruits, flowers, and animals; delicately wrought chains, pendant from the mouths of eagles and lions, and these, though intricately interlaced, yet hanging free, are carved out of the solid block, extended eagles' wings, ingeniously designed to form a base, medallions with a view of the city of Jerusalem, and the armorial bearings of the exhibitor, Hebrew inscriptions, and passages from Holy Writ, in Hebrew, set gem-like, in the buds of roses and other flowers.

- 161A **DAY, RICHARD**, *1 Rockingham Place, New Kent Road*—Modeller.

Architectural models—Portico of the Parthenon at Athens, The Temple Church, Fleet Street. Portico of the Pantheon at Rome. The Martyrs' Memorial at Oxford, a modern example of decorated Gothic. Chancel end of a church, decorated Gothic, the window from Hero Church, Kent.

- 162 **WILBY, THOMAS**, *St. Bartholomew's Hospital*—Maker.

Model of St. Paul's cathedral in Cardboard.

- 163 **BAINBRIDGE, J.**, *Gilling, Richmond, Yorkshire*—
Producer.

Model of Clumber House, the country seat of the Duke of Newcastle, in white cardboard, scale $\frac{1}{2}$ of an inch to 1 foot.

- 164 **CORRINGE, WM.**, *Chichester*—Manufacturer.

Architectural models in paper:—1. Chichester Cross. 2. Monument of King Edward III. 3. St. Paul's Cathedral.

- 165 **GRAINGER, RICHARD**, *Newcastle-upon-Tyne*—
Designer.

Models of proposed Town and County Courts, and of the Central Exchange Buildings, Newcastle-on-Tyne.

- 166 **MIDDLETON, JOHN**, *Bondgate, Darlington*—
Producer.

Model of York Minster, on a scale of $\frac{1}{16}$ of an inch to a foot.

190 FRANCHI, GIOVANNI, J., 15 *Myddleton Street*—
Manufacturer.

Four statuettes in imitation of ivory: Henry VIII.; Queen Elizabeth; Charles I.; and William I. Designed by Charles Grant.

191 ROSS, HENRY, 15A *Douro Place, Kensington*—
Designer.

Statuettes of the Duke of Wellington and the late Sir Robert Peel, Bart.: modelled in wax for Parian and metal.

192 DAYMOND, J., 5 *Regent Place, Westminster*—
Designer and Carver.

Vase with flowers, and sculptured flowers, in marble.

193 RITCHIE, JOHN, 92 *Princes Street, Edinburgh*—
Designer.

Statue in marble of the Duke of Wellington.

194 CHEVERTON, BENJAMIN, 38 *Camden Street, Camden Town*—Inventor.

Statuettes, busts, and bas-reliefs, in ivory, alabaster, marble, and metal; carved by a machine from originals of a larger size. Those in ivory and marble, not finished by hand.

195 LEES, JAMES, *Hinckley*—Maker.

Model of the stocking-frame introduced into Hinckley, by William Iliffe, in the 17th century, which, with some improvements of detail, is still in use. In front is the workman's seat; opposite him are the needles, receiving yarn from bobbins; and on the minuteness of these needles depends the fineness of the fabric.

The levers are set in motion by treddles moving a pulley, which, aided by the hand, throws the thread into such curvatures as to form loops; another treddle brings down the presser bar upon the hooks of the needles, during which the levers are brought forward by the hands, so as to net the loops previously formed; the process repeated forms a web, and is designated frame-work knitting. The cube of the model is the 200th part of the bulk of the working machine, and the 150th of its weight.

196 WORRALL, CHARLES, 20 *Little Drummond Street, Euston Square*—Designer and Modeller.

Specimens of modelling and casting.—Lamp, or candelabrum pillars. A font. Tomb of Edward the Black Prince in Canterbury Cathedral. Casts from nature.

197 PALMER, WILLIAM, 144 *Western Road, Brighton*—
Inventor.

Revolving table for modellers, sculptors, statuary; adapted for supporting busts, statues, and wax flowers, or any other article for display.

Callipers, with adjusting screw, for reducing or enlarging to three different scales.

199 ALLIN, JOHN, 26 *Cannon Street Road East*—
Proprietor.

A group modelled in wax, representing Sir Robert Peel and Duke of Wellington on horseback. Designed and modelled by Joseph George Bullock, London.

200 WILSON, GEO., at *Hime & Addison's, St. Ann's Square, Manchester*—Producer.

Cribbage-board inlaid with the nacre of a species of *Pinna* from the Pacific.

[*Pinna* is a genus of bivalve shells allied to the mussel. Large species of it are found in various parts of the world, and one in the British Seas.—E. F.]

201 HINE, EDWARD, 2 *Orchard Street, Kensington*—
Modeller.

Model of a carriage, made entirely of card-board. Every part made to act.

202 EVANS, J. H., 2 *Kender Street, New Cross*—
Producer.

Models: St. Mary's Church, Whitechapel; Swiss Cottage, at Cranham, Gloucestershire; from an engraving.

203 WRIGHT, CHARLES, 8 *Torriano Terrace, Kentish Town*—Designer and Modeller.

Statuette of a sleeping babe, modelled from life, and cast in composition, to imitate marble.

204 MOSSMAN, WM., 17 *Rodney Street, Pentonville*—
Designer and Manufacturer.

Perforated note paper, representing the marriage of Cupid and Psyche; embossed.

Model of the building for the Great Exhibition, executed in perforated paper.

Various ornamental lace and perforated papers.

New method and design for decoration of rooms by means of embossed paper laid on in small pieces.

Candelabra in brass, made to take to pieces and form a variety of shapes.

205 VINN, THOMAS, 6 *Union Walk, Kingsland Road*—
Designer.

Specimen of single leaf gilding, imitation or-molu on plaster.

206 RUSSEL, G., 4 *Dee Street, Aberdeen*—Producer.

Snow-ball fight at school, in relief.

208 JORDAN, C., *Manchester*—Producer.

Specimens of ivory balls, turned.

208A FOOTS, MRS., 2 *Little Chapel Street, Westminster*—
Producer.

Specimens of feather flowers.

209 WOOD, C. H., 2 *High Street, Poplar*—Producer.

Specimen of engraving on shell.

210 JACOT, H. L., *Coventry Street*—Designer.

Egg-shells carved with views inside, and others engraved on.

211 SMITH, H. A., *Caroline Place, Hampstead Road, Haverstock Hill*—Designer and Executor.

Gothic ceiling of the fifteenth century, and a group in plaster; relief book-cover, designed by L. Linner.

212 BARTENS, PAULINE, 18 *Oxendon Street, Haymarket*—
Designer and Manufacturer.

Pack of miniature playing cards, half an inch in length, painted by hand in water colour, enclosed in a case.

Jenny Lind toilet pincushion and ring stand.

Small work-table, screen, glass, and chair, forming pincushions and needlebooks; the articles all made of English materials.

213 SMITH, MARY ANN PELLEW—Designer and
Modeller.

Model of an English "Home," of the 19th century. The villa is completely furnished, to illustrate the home of a small family of fortune, belonging to the middle rank; the individuals are represented by wax figures varying from 3 to 4 inches in height, partly modelled, partly cut out of the wax. Designed and executed by the exhibitor.

214 LUNTLEY, J., & Co., *New Broad Street Court, City*—
Engravers and Printers.

Specimen of machine engraving.

215 MORGAN, H. K. G., M.P., *Johnstown Castle, Wexford, Ireland*—Proprietor.

Model of Johnstown Castle, county Wexford, Ireland, the seat of the exhibitor. This mansion covers an area

of 188 feet by 133 feet, is built in the perpendicular, pointed, and florid Gothic style of architecture. It was originally an Anglo-Norman keep, and a place of comparative strength.

216 FULHAM, JAMES, Waltham Cross, Broxbourn—
Designer and Manufacturer.

Gothic vase of pale red terra cotta. Pedestal for the same of granulated terra cotta.

Specimens of stone-like cement (at the basin of the crystal fountain).

217 HOLDING, MRS. SYRELLA, 31 Mount Pleasant—
Liverpool—Designer and Maker.

Pair of wax figures, fancy costume; wax figure of Her Majesty, the drapery and gold trimmings in wax; groups of flowers; and shells in wax.

218 SEAL, JOSEPH, Worship Street, Shoreditch—
Producer.

Model in wood, of Crosby Hall, Bishopsgate; built about 1470, by Sir John Crosby, Sheriff of London, and once inhabited by Richard III.

219 FARWES, JAMES R., 105 Upper Thames Street—
Designer and Manufacturer.

Model of a gothic conservatory, or fern-house; designed as an ornamental addition to a botanic garden.

220 MACHI, JOHN JOSEPH, Tiptree Hall, near Kelvedon, Essex—
Designer

Working model of Tiptree Hall farmery, near Kelvedon, exhibiting the new principle of keeping and feeding animals on open-boarded floors; thus dispensing with the use of straw for bedding, and setting it free for feeding purposes. It also shows the economical application of steam-power to thrashing, grinding, chaff-cutting, dressing, pumping, sack-lifting, and cooking the food for animals. The model is executed by Mr. H. S. Merrett,

82 Fetter Lane, London. The machinery of the model executed by George Frazer Campbell, 17 Addington Street, York Road, Lambeth. The models of animals executed by Messrs. Vincenzo, Ruffoni, and Forzano, 4 Greville Street, Hatton Garden.

221 CAPLIN, J. H. I., Strawberry Hill, Pendleton, Manchester—
Designer and Executor.

Topographical oil painting:—Bird's-eye view of the gulf of Naples. An illustrative expression of the laws by which the surface of the earth assumes particular forms.

222 CLIFFORD, WILLIAM, Exeter—
Proprietor.

Models of the west front of Exeter Cathedral, made of the pith of the common green rush, used in making rush-lights; of the Bishop's throne in Exeter Cathedral; and of Chinese pagodas.

223 GUSELOW, GEORGE, 34 Newman Street, Oxford Street—
Inventor.

Composition table, imitation of bronze, steel, and gold. Plaster casts—Diana, Flora, Warrior, Bull, Greyhound, Dancing Figure, Lions, and reliefs, some of which are partly in imitation of bronze, steel, Florentine and antique bronze, and antique copper coloured like bronze. The invention is useful in preserving and hardening the surface of plaster. Plaster casts of Portland vase and Nero cup, frosted silver; these will remain untarnished by the action of the air; group of greyhounds, frosted silver; cartoon imitation of old silver; tortoise, imitation of old silver; frog, silver on bronze leaf.

224 MONTANARI, NAPOLEON, 29 Upper Charlotte Street, Fitzroy Square—
Modeller.

Collection of figures, illustrating the different characters of Mexican town and savage life, with their varied costumes and attributes. Twelve civilised Indians of Mexico and its environs, laden with produce and manufactures. Twelve savage Indians, male and female, called *Mecos*, inhabitants of the interior of Mexico. A group of these figures is represented in the following cut.



Montanari's Group of Mexican Figures

Four blacks at different occupations. Court-yard in Mexico; a wealthy farmer and his lady preparing to ride on the same horse, the groom holding the reins. Two groups, one representing the *Rancheros de lasa*, and the other the *Coyotes de lasa*. The *Fandango*, a national dance, a group of three figures. Symbolical figure of Mexico. Group of three Mexican figures.

North American Indian preparing to scalp a white traveller. Anatomical specimen, portraying the last hour of life in consumption (from nature).

Two statuettes of Oacela, the celebrated Seminole chief of Florida, who died in captivity at Fort Moultrie, Charleston. One of these statuettes is represented in the following cut.



Montanari's Statuette of Oacela.

Indian hunting the tiger. Indian carrying away a white child.

225 PIDGEY, FREDERIC JOHN, *Connyer Cottage, Torre, Torquay, Devonshire*—Proprietor.

A platoon, in Florentine marble, of statues, monumental trophies, implements, &c., representing "The fall of Troy, and the Greeks celebrating their victory."

226 BINGLEY, H., 17½ *Kensington Place, Holywell Street, Westminster*—Designer and Manufacturer.

Circular enamelled slate table; decorated in the Etruscan style. Oblong table; antique carved oak stand, enamelled top; after the Etruscan decorations.

Panel containing imitations of marbles in enamelled slate; for chimney-pieces, pilasters, panels, and table tops. Panel containing specimens of colours in enamelled slate; for casing the walls of libraries, halls, dairies, &c.

227 CRADDOCK, THOMAS, *Wisebeck*—Producer.

View of Peterborough Cathedral from the east; the west front from market place. Gates entering the Precincts, Peterborough. Porch entrance to Peterborough Cathedral. Mid gate-street, Peterborough. New iron bridge of the Great Northern Railway, and wooden bridge over the Nare, Peterborough.

Photographic copy of Holloway's print of Raphael's *Elymas*. Cloisters, Peterborough Cathedral.

Photographic copy of Vandyke's "St. Ambrose refusing Theodosius admittance into the church."

228 CALVERT, W., 43 *Clerkenwell Green*—Producer.

Ornamental engraved zinc plate inlaid with different metals.

228A BULMAN, JOHN, *Kelso, Roxburghshire*—Designer.

Model of a farm standing, erected at Wark, in the county of Northumberland, in the year 1850, on a scale of one-eighth of an inch to the foot; with removable rod, to show the interior arrangements.

The homestead feeds 100 cattle at a time, and has accommodation for young cattle. The stable is fitted up for 24 work-horses. The principal granary is 120 feet by 18 feet, which, with the other granaries, is sufficient to store one-sixth part of the crop. The cart shed is 75 feet by 18 feet. The homestead and stackyard stand on upwards of 3½ acres.

229 CRICHTON, GEORGE, *North Bridge, Edinburgh*—Designer and Manufacturer.

Specimens of Scotch pebble mosaic work; an inkstand, penholder, pencil-case, paper-knife, desk-seal, and paper-weight, mounted in fine gold, and composed of pebbles, jaspers, pearls, and other Scotch gems, showing the most difficult forms of cutting of which these stones are capable, and including all the most rare specimens hitherto discovered. The pearls are from the Tay; the gems from Cairngorm Hill; the jaspers from Arthur's Seat, Kinnell Hill, Montrose, the Ochill Hills, and other districts of Scotland.

[Jasper, a hard quartz stone of great beauty in some of its varieties, and taking a fine polish, is much prized by workers of mosaic in "pietre dure." The Italians, who chiefly practise this art, have hitherto sought their supplies in Sicily. In the present instance the jaspers have been derived from a source in our own country.]

Work-box, composed of the same stones, in silver mounting, gilt; the cairngorm on the top is large, free from flaws, and of excellent colour.

Two bracelets, composed of Scotch pebbles and gems, in gold mounting. Highland brooch, composed of Scotch gems in gold mounting, with new method of securing the pin.

Specimens of enamelling, applicable to articles of use and ornament: silver claret jug, with enamelled scroll ornaments. The manner in which the enamel is put on secures its durability.

Chatelaines of silver scrolls, ornamented with enamel of various colours; the application of enamel to silver articles of this description is new.

"Albert" shoulder-brooch for Highland plaid.

230 RUSSELL, SAMUEL, 3 *Darnley Terrace, Gravesend*—Inventor.

Specimen, from a print of a line engraving, a fac-simile on steel, from which an indefinite number of fine impressions may be printed.

230A DOWSE, HENRIETTA, 39 *Upper Charlotte Street, Fitzroy Square*—Inventor and Designer.

Illuminated and emblazoned coat of arms and border on vellum by an entirely new process of painting in gold, silver, and colours, with raised work, peculiarly adapted to armorial bearings, illuminated manuscripts, &c.

231 HOLMES, S.—Producer.

Fragments of the Portland vase.

231A HUMPHREYS, JOSEPH, 13 *Howard Street, Strand*—Inventor and Manufacturer.

Portable metallic transparent letters, affixed on glass, for door-plates, stall-boards, and shop windows; these can be transposed and re-arranged without injury to the surface of the glass.

232 ROCKEAD, J. T., *Glasgow*—Designer.

Model of the royal arch at Dundee, erected to commemorate Her Majesty's landing there in 1844. The

design is from the Anglo-Saxon era of architecture; main tower 84 feet; width of structure across the arches, 83 feet.

232A WHISHAW, F., 1 St. John Street, Adelphi—
Producer.

Map of London.

233 GREEN, J., 109 Great Portland Street, Cavendish Square—Designer and Engraver.

Large military trophy engraved on a zinc plate, 5 feet 7 inches long, by 2 feet 4 inches wide, with bronze frame.

234 ETHERINGTON, H., 2 West Street, Pimlico—
Inventor

Two enamelled table-tops, in imitation of glass mosaic work.

235 ALDRED, STEPHEN, 38 Fetter Lane—Sculptor.

The Shakspeare Jubilee; each group of figures represents one of the principal scenes in the plays of the immortal bard. Produced during the leisure hours of a working printer.

235A THOMAS, J., 9 Old Church Street, Puddington—
Producer.

Design for Preston Hall, modelled by T. Dighton.

236 THOMSON, JAMES, 57 Devonshire Street, Portland Place—Producer.

Design for a colossal time-piece, adapted for silver or bronze manufacture, and intended to illustrate the issues of the Divine economy from the creation to the apocalypse, by figures derived chiefly from the works of Michael Angelo, and other masters of the 16th century.

237 HASLEM, JOHN, 1 Wilton Place, Portland Terrace, Regent's Park—Producer.

Frame, containing enamel paintings on gold.—1. The Queen in her bridal dress; 2. The Prince of Wales; 3. Prince Alfred, after F. Winterhalter; 4. Princess Feodore of Leiningen, after Steward; 5. Late Dowager Duchess of Saxe Gotha and Altenburg—these five from the collection of H.R.H. Prince Albert. 6. Princess Joinville, after F. Winterhalter; 7. His Grace the Duke of Bedford; 8. Her Grace the Duchess of Bedford, after Catterson Smith; 9. The Marquis of Tavistock, after F. Stone; 10. The late Countess of Harrington, after Cosway, from the collection at Woburn Abbey; 11. Dr. Lyon Playfair.

Three enamels on porcelain.—The Good Shepherd, after Murillo; the infant Samuel, after Reynolds; and Sibilla Eritrea, after Domenichino.

[Gold, of the standard quality, is the best metal to enamel on, as it imparts something of its own glow to the ground, and assists materially the richness and delicacy of the colouring, particularly in the flesh tints. Copper gives a cold greenish hue to the enamel ground, but it is more commonly used than gold on account of its cheapness. For large enamels it is necessary to use copper as they require a heat which would melt plates of gold.]

238 BONE, HENRY PIERCE, 22 Percy Street—
Producer.

Enamel paintings on gold.—Landscape after Mola; and Mater Dolorosa after Guido, in the collection of Joseph Neeld, Esq., M.P. Frances, Marchioness of Camden, after Reynolds, and Frank Hals, from the original, by himself, in the collection of Earl Spencer, K.G. Peter the Great of Russia, from the portrait by Kneller, the background by Vandervelde, in the collection of Her Majesty. Judas betraying Christ, after Guido, in the collection of Earl Darnley. Corin and Phileas, original. Infant Saviour, after Murillo, in the collection of Joseph Neeld, Esq., M.P.

239 CHABOT, CHARLES, 9 A, Skinner Street, Snow Hill—Designer and Engraver.

Specimens of transfer zincography, and medallion engraving; and of sculpture engraving, produced from the object in perspective by a patent engraving machine.

240 LAING, JOHN, Calton Hill, Edinburgh—Designer and Manufacturer.

Glass chess or draught board.

241 ESSEX, WM., 3 Osnaburgh Street, Regent's Park—Painter in Enamel.

Enamel Paintings from Her Majesty's Collection.

1. H.R.H. Prince Albert: from a miniature by Sir W. C. Ross.

2. The late Queen of the Belgians: from a miniature by Sir W. C. Ross.

3. H.R.H. the Duchesse de Nemours: from a miniature by Sir W. C. Ross.

4. Ernest I., Duke of Saxe-Coburg and Gotha; father to H.R.H. Prince Albert: from a picture by Schmiedt.

From H.R.H. Prince Albert's Collection.

5. The Queen: from a miniature by Sir W. C. Ross.

6. The Queen: from a picture by F. Winterhalter.

7. Leopold, King of the Belgians: from a miniature by Sir W. C. Ross.

8. Ernest II., Duke of Saxe-Coburg and Gotha; brother to H.R.H. Prince Albert: from a miniature by Sir W. C. Ross.

9. Prince Frederick Josias, of Saxe-Coburg Saalfeld, Commander-in-Chief of Allied Forces in the Netherlands, in 1792: from a picture by Jagomann.

10. Mary Queen of Scots.

11. Henry VII.: from a picture by Holbein.

12. Henry VIII.: from a picture by Holbein.

13. Edward VI.: from a picture by Holbein.

14. Queen Elizabeth, when 16 years of age: from a picture by Holbein.

15. Queen Elizabeth: from the original by Zucchero.

16. Albert, Prince of Wales, when 16 months old: from a miniature by Sir W. C. Ross.

17. H.R.H. the Princess Royal: from a miniature by Sir W. C. Ross.

18. H.R.H. Princess Helena: from a picture by Winterhalter.

Enamel portrait of Lord Byron: from the original by S. Phillips, R.A.

Enamel portraits of Sir Walter Scott and Thos. Moore, Esq.: from the originals by Sir Thomas Lawrence.

Enamel of the Little Strawberry Girl: from the original by Sir J. Reynolds.

Enamel portraits: Napoleon, by S. Phillips, R.A.; and the Duchess of Northumberland, by Sir T. Lawrence.

The last three are from the collection of the Duke of Northumberland.

Enamel portrait of Milton, when 20 years of age: from the original by Cornelius Jansen, in 1672.

Sir David Wilkie: from the original by S. Phillips, Esq., R.A.

John Gaspar Gevartius, a Belgian philologist, born at Antwerp, in 1593: Vandyke—in the National Gallery.

Lady Nugent: from the original by Sir Thomas Lawrence.

Enamel of the Infant Saviour: from the original by Murillo, in the National Gallery.

Enamel portraits of the late Duke of Gordon: (G. Sanders); and the Duchess of Gordon. Both from the collection of the Duke of Richmond.

Marshal Beresford: by G. Sanders; and Viscountess Beresford: by Sir Thomas Lawrence. Both from the collection of H. S. Hope, Esq.

The Duke of Wellington: by Sir Thomas Lawrence. From the collection of the Marchioness of Douro.

Napoleon: from the original miniature by Duchesne. From the collection of Lord Overstone.

Oliver Cromwell: from the original miniature by S. Cooper, in the British Museum. From the collection of Lord Overstone.

Lord Nelson: from the original by Abbot.

Shakespeare: after the Chandos picture by Burbage.

The Hon. Charles William Lambton, eldest son of the Earl of Durham: by Sir T. Lawrence. From the Countess of Elgin's collection.

An enamel of Sancho Panza in the days of his youth: the original by Sir David Wilkie, R.A. From the collection of the Duke of Buccleuch.

An enamel of "Ecce Homo!" from the picture by Guido.

An enamel of the Dog and Fox; the first animals brought from the Arctic Regions, by Capt. Ross.

[A highly-finished enamel is passed through the fire a number of times in the process of painting, otherwise it would be impossible to imitate any great delicacy of tint, as the colours are considerably changed by burning. As the plates are every time subjected to a bright red heat, it is obvious that enamels must be the most durable of all kinds of paintings.—J. H.]

242 CARRICK, THOMAS, 10 Montague Street, Portman Square—Inventor and Painter.

Specimens illustrative of the application of white marble as a material for miniature painting; durable, and little affected by light or atmospheric influences. The frame designed and manufactured by Henry Vine, of Albion Place, Little Chelsea.

[This material, not affording food for the development of fungi, is not affected by mildew, neither is its texture altered by variations of temperature.]

243 DE LARA, DAVID, 3 Alfred Place, Bedford Square—Designer and Inventor.

Illuminated design on vellum, in colours and gold, 32 inches in diameter; designed in the style of the middle ages, forming a chess-table in the centre, surrounded by arabesque borderings, grouped with flowers, enclosing four pictorial illustrations relative to the game of chess, viz., "the first move," "check," "mate," and "stale mate."

244 HARRIS, JOHN, 40 Sidmouth Street, Regent's Square—Producer.

Imitative art in ancient typography.—Specimens of block printing before the use of moveable types; Chaucer, by Caxton, 1st and 2nd editions; Katherine of Sienna, printed by Caxton; Polychronicon, and Promptuarium Parvulorum, by Wynkyn de Worde; English chronicle, by Pynson.

Fac-simile title pages of Coverdale's Bible, 1535; Tyndale's Testament, 2 editions; Tyndale's Pentateuch; and various books of the 16th century.

Specimens of imitative art in illuminated painting.—An elaborate painting on vellum, the border entirely of gold, from an Italian master of the 16th century. Small specimens of Holbein's Dance of Death, finished in opaque colour.

By this method the exhibitor states that accurate specimens of early typography and fac-similes of illuminations can be supplied.

245 GEAR, JOHN WM., 5 Charlotte Street, Fitzroy Square—Inventor and Artist.

Specimens of a composition to supersede ivory, for large water-colour paintings, which can be manufactured of any required dimensions, and used for the same purposes as ivory. The colours are described by the exhibitor as holding with tenacity, improving by age, and not fading as on ivory. Illustrated by two paintings.

246 CHESTERS, STEPHEN, 1 Blomfield Road, Maida Hill—Producer.

The Holy Family—a specimen of enamel painting on porcelain, after the original picture in the National Gallery, by Murillo.

[The colours used for painting on china are chiefly metallic, and only differ from those used for enamels on metal in having a greater proportion of flux, rendering them more fusible.—J. H.]

247 GOULD, J., 20 Broad Street, Golden Square—Inventor.

A new mode of representing the luminous and metallic colouring of the *Truchilide*, or humming birds.

The effect is produced by a combination of transparent oil and varnish colours over pure leaf gold, laid upon paper prepared for the purpose.

248 COX, GEORGE JAMES, Royal Polytechnic Institution—Inventor.

An improved method of transferring copies of delicate copper and steel-plate engravings to the surface of lithographic stone. One copy taken from the steel or copper plate, after being transferred to the stone, is capable of producing 3,000 prints. Stones exhibiting specimens.

249 BELL, W. CHARLES, 44 Dean Street, Soho Square—Producer.

Enamel painting on copper, "Ecce Homo," after Correggio.

[The art of enamelling is of great antiquity; indeed, it is impossible to say in what country it was first discovered. It was doubtless practised in Egypt, specimens being found with mummies in that country. It was also cultivated in China, Greece, and Italy. The enamellers of Limoges were famous in the twelfth century, and probably attained their greatest excellence in the sixteenth, under the patronage of Francis I. In modern times, the art has been successfully practised in most countries in Europe, particularly by the Venetians and Genoeves.—J. H.]

250 NEWTON, Sir WM. J., 6 Argyle Street—Producer.

Pictures painted on ivory, joined together by the artist by a process of his own invention.

1. The Homage, containing the portraits of—
Her Majesty.

The late Duke of Sussex; the late Duke of Cambridge.

The Duchess of Sutherland.

The Countess of Gainsborough.

The Bishop of London.

The Marquis of Conyngham.

The Duke of Richmond.

The late Lord Melbourne.

Viscount Palmerston.

The Duke of Wellington.

2. The marriage of Her Majesty and Prince Albert. Containing the portraits of—

The late Queen Adelaide.

The late Duke of Cambridge.

The Duchess of Kent.

The late Duke of Sussex.

Lady Adelaide Paget.

Lady Caroline Lennox Gordon.

The late Archbishop of York.

The late Archbishop of Canterbury.

The Bishop of London.

The late Duke of Saxe Cobourg.

The Duchess of Cambridge.

The Duke of Cambridge.

3. The christening of the Prince of Wales in St. George's Chapel, Windsor, containing the portraits of—

Her Majesty and Prince Albert.

The late Duke of Sussex.

The Duke of Cambridge.

Prince Edward of Saxe Weimar.

The late Bishop of Norwich.

The late Archbishop of York.

The late Archbishop of Canterbury.

The late Dean of Windsor.

The Bishop of London.

The King of Prussia.

The late Duke of Cambridge, and

The Duchess of Kent.

251 NICHOLS, MARY ANN, 7 St. Michael's Terrace, Pimlico—Inventor and Designer.

Imitation of cameos: new mode of producing likenesses, with portraits in illustration.

252 LAROCHE, MARTIN, 65 Oxford Street—Designer and Producer.

Three Daguerreotypes: a composition—"The bath;" a subject—"The evening star;" Daguerreotype as applied to sculpture.

253 DOW, ENOCH, High Street, Worcester—Designer.

Specimens of enamelling upon porcelain plates. Scenes from Shakespeare's "Richard the Second." "Royal arms." "Tilting."

254 VOIOTLANDER, EVANS, & CO., 3 Lombard Terrace, Knightsbridge—Proprietors.

Daguerreotype portraits by an improved instantaneous process. Artist, E. T. Pickering.

255 TROTMAN, S., Clarendon Road, Notting Hill—Inventor.

Printing on glass for ornamental purposes, such as glazing conservatories, windows, &c.; and for philosophical purposes, such as dissolving views, &c.

256 PRING, Dr. JAMES H., Weston-super-Mare—Inventor and Designer.

A specimen of ornamental engraving on a plate of hardened polished steel, effected by means of voltaic electricity. Specimens of steel plates, razor and knife blades, steel brooches, &c., in illustration of the method.

[This method of ornamenting is effected solely by means of the electro-magnetic agency, without the intervention of any fluid medium, or the employment of any acid on the object to be engraved. A steel plate, sword blade, razor, or other object to be engraved, is attached by means of a wire to one extremity of an electro-magnetic arrangement, whilst another wire, coming from the other extremity, serves the purpose of the etching or graving tool. The graving wire may be regarded as a pen, charged, however, with the electric fluid in place of ink. One of the advantages of this new application of the electric power is, the extreme whiteness of the mark produced, as compared with the dark surface of the polished steel. This is more conspicuous in the embellishment of any finished article, as a sword-blade, knife, &c. During this process, which may be easily tried by any one, the electrical scintillations produced by the combination of the steel are very beautiful.]

257 BYRN, OSCAR, 9 Monmouth Road, Westbourne Grove—Designer and Artist.

Ornamental framework in cork.

258 BRENNER, JAMES, James Court, Edinburgh—Designer and Chaser.

Specimens of silver embossed chasing in heraldic and other styles of ornament, intended chiefly to be used for brooches.

Highland ornaments and harness mountings, &c.; Prince Albert's coat of arms, crest and mottoes; crests of Duke of Buccleuch, Marquis of Bute, Earl of Aberdeen, Earl of Breadalbane, Earl of Dalhousie, Earl of Wemyss, and Viscount Palmerston. Other coats of arms, crests, and mottoes. Design for top of a presentation snuff box; for a Highland belt-plate with crest; for a book-clasp and corners; and for a miniature frame.

259 HASEX, E., Leeds—Producer.

Ornamental frame and flowers.

260 YHO, Dr. DANIEL, Ashburton, Devonshire—Proprietor.

Specimen of oil painting on white velvet, in which the velvet retains its elasticity and softness, and can be washed or brushed, without injury to the painting or fabric. Adapted for chair-covers, and general decoration.

261 GARDIE, LOUIS, 59 Westbourne Green, Hyde Park Gardens—Sculptor.

Bronze bust of Sir Robert Peel and the Marquis de la Roche Jacquelin, modelled, cast, chased, and finished solely by the exhibitor.

262 BATESFORD, JAMES, 22 Stafford Place South, Pimlico—Sculptor.

The kestrel hawk (*Falco tinnunculus*) and butcher bird (*Lanius*), represented on a bank of earth, from which is springing the coltsfoot plant (*Tussilago Farfara*); executed from a single block of linnetree.

263 STAVELEY, THOMAS K., Esq., late Royal Engineers, Old Steningsford, Ripon—Painter.

Carte relief map of Linz, Upper Austria, showing the entrenched camp of Maximilian Towers and the surrounding country. Designed by Thomas Firth.

264 BROWN, GEORGE, 25 Newman Street, Oxford Street—Designer and Manufacturer.

Figure candelabra, on a dolphin tripod stand, for the drawing room; the ornamental parts of wood and composition, the figures and dolphins of Carton-pierre; the whole in imitation of or-molu.

265 PULLAN, R. P., 65 Higher Temple Street, Manchester—Designer.

Designs for polychromatic decorations, after the manner of the middle ages; showing the effect of the application of positive colours instead of half tints.

Design for the decoration of a chancel in the Romanesque style; of a reredos or altar screen in the Geometric style; of a royal palace in the Tudor style.

266 MORGAN, E., St. Helen's, Swansea—Designer.

Topographical model of Tynemouth Castle, representing at one view sections and elevations.

Model of Tintern Abbey, in which sawdust is used to represent ivy or foliage.

267 PLACE, GEORGE GORDON, Nottingham—Producer.

Drawings, illustrating "the art of Church Building" in the United Kingdom.

268 BENNETT, EDWARD, C.E., 10 Great College Street, Westminster—Architect.

Design for a National Monument to His Royal Highness Prince Albert. The design is square on plan. On the four sides of the elevation above, are four large bronze panel castings in relief, to commemorate the Industrial Exhibition of 1851, and chief events connected therewith, as follows:—

1st. The exterior of the Industrial Exhibition of 1851. 2nd. The interior view of the same. 3rd. The Grand Opening to all Nations. 4th. The Distribution of the Prizes to its Exhibitors.

These four castings in bronze are intended to be twice the size of similar ones on the base of the Nelson Column at Trafalgar Square, and to have sculptured figures in niches on either side, to give the subject of the castings in an emblematic sense, showing the noble intention of His Royal Highness, relative to each, and at the extreme angles of the base, carried out as abutments, are sculptured blocks, upon which are illustrated the emblems of Royalty and Peace.

Europe, Asia, Africa, and America, as emblematical figures, are seated on piers at the four angles of this base; above which, the globe of the earth is represented in polished granite, on which stands a statue of the Prince

in Parian marble, placed in a metal temple, gilt, and dedicated to Prosperity and Fame; with the crown of England above, to denote the Royal auspices under which this Grand Industrial Exhibition has been so successfully accomplished.

269 DRIVER, C. H., 46 West Square, Southwark—
Designer.

Architectural design for a baptistry and font.

270 STOCKER, NATHANIEL BLESS, 7 Charles Place,
Kentish Town—Designer and Proprietor.

Designs for church windows, in which sculpture, &c., is inserted into the tracery. The Commandments are painted on the glass.

271 DICKNEY, JOHN ROBERT, 27 Howland Street,
Fitzroy Square—Producer.

Sabbath Evening, a specimen of chromo-lithography, in six colours.

272 NICHOLL, SAMUEL JOSEPH, 11 Argyl Place—
Designer.

Design for a cast-iron screen to enclose a chapel. In this design an attempt has been made to modify the forms of mediæval architecture, to suit a material the extensive use of which is peculiar to our age.

273 TENNENT, MRS. ROBERT NEILSON, Vale of Health,
Hampstead—Artist.

Miniature portrait. The exhibitor, a self-taught artist, sister of the late Douglas Cowper, S.R.A.

Miniature painting "The Grape Gatherer." Brought from Rio de Janeiro, for exhibition.

274 APPEL, RUDOLPH, 47 Gerrard Street, Soho—
Inventor.

An original print by Albert Durer, representing the "Offering of the Wise Men," date 1518. Plate of the same, with the impression taken by the anastatic process. A copy from the plate.

An original print by Albert Durer, representing the "Nativity." Plate of the same, with the impression taken by the anastatic process. A copy from the plate.

Specimen portrait, printed by the new appolotype process. From the original sketch from life, by Henry Glynn, Esq. Portrait of Alexander von Humboldt, the original from life, by Friedrich Droege, miniature painter to His Majesty the King of Prussia. A landscape by Paul Fischer.

The appolotype process consists in enabling the artist to have his own original sketches and paintings with the brush reproduced in the style of mezzotints.

275 WARNER, W., 44 Gerrard Street, Soho—Designer
and Producer.

Impressions and casts from intaglios, portraits, figures, seal of the Art Union, &c.

276 MORISON, DAVID, 31 Arlington Street, Mornington
Crescent—Designer.

Coloured wax model of a female hand.

Heads of angels, modelled in wax.

277 SOUNES, JAMES, 49 Rupert Street, Haymarket—
Manufacturer.

Reduced model in wax. Group of animals.

278 BISHOP, J., North Audley Street—Inventor.

Engravings by clockwork, for the prevention of forgery. Plate or print, containing a large oval medallion of the Queen, with both light and shade, produced by a single line of equal thickness, and 229 feet in length.

Plate or print, containing specimens for bankers' notes and cheques. Plate or print, containing specimens for stamps, &c. Plate or print, containing a bill of exchange in English, and in French, showing that the same design can be repeated.

By this invention an indefinite variety of designs may be produced. Many of these engravings, to the general

observer, have the appearance of engine turning, combined with that of the relief ruling-machine; but the practised eye may detect the fact that neither rose-engine nor lathe were employed in their production. This machine does not require either patterns or chucks to work from, the various patterns being generated by a moveable train of change-wheels, which, according to their arrangement, produce all the variety of patterns and graduated shades, &c.

279 RUNDALL, W. W., Falmouth—Producer.

Specimens of seals engraved by machine.

280 GIFFORD, JOHN, Royal Polytechnic Institution—
Designer and Artist.

The lion, tiger, elephant, and Alpine goat engraved in cornelian, with impressions.

281 ADAMS, G.—Producer.

Specimens of medals, dies, &c.

282 MARTIN, THOMAS, Newton Abbot—Inventor and
Manufacturer.

Wax impressions of seals engraved by machinery, containing various patterns and sizes of initial, trade, and official seals, in old English, Roman, and Egyptian letters; also "The Lord's Prayer," in English and Latin, each clear and distinct, on a space less than that of a circle a quarter of an inch in diameter. The seals are engraved on brass, and when finished, are mounted on ivory and hardwood handles. The name of the process is "Torneography."

283 COX, HENRY, 8 Upper Southampton Street, Pentonville
—Producer.

Model—"Death on the Pale Horse."

284 WYON, WILLIAM, R.A., Royal Mint—Designer
and Modeller.

Portraits of Her Majesty the Queen and His Royal Highness Prince Albert, being the model for the obverse of the GREAT EXHIBITION PRIZE MEDALS.

Proof coins of the present reign. Specimens of the coins of the two preceding reigns, and of the coins of Portugal, Venezuela, and New Grenada. Models of war-medals, &c.

285 BARCLAY, GEORGE, 22 Gerrard Street—Engraver
and Printer.

Designs for visiting cards, and other engravings.

Specimens of die-sinking, or engraving in metal, and of seal engraving on gems.

Specimens of imitative coins on paper, being impressions of ancient coins, fac-similes of the originals; for the illustration of books, the formation of educational or instructive cabinets, and the completion of scientific collections, by Miss P. S. Barclay.

Specimens of Scripture coins.

286 WYON, LEONARD CHARLES, Royal Mint—
Medallist.

Portraits of the Royal Children; modelled by command of Her Majesty the Queen, in August, 1850.

Model which obtained the prize of 100*l.* in the general competition of designs for the Great Exhibition medals, and, which was adopted by the Royal Commissioners as the second size prize medal.

287 WYON, BENJAMIN, 287 Regent Street—Designer
and Engraver.

Impressions of the great seals of England, Scotland, and Ireland; of the courts of law; the British colonial governments, and various others; and of medal dies.

288 LONGMAN, J. & R., 1 Waterion Place, Pall Mall—
Designers and Engravers.

Specimens of impressions from seals.

289 KITCHENER, THOMAS, 3 Little Compton Street, Soho—
Designer and Engraver.

Seals for Her Most Gracious Majesty; H.R.H. Prince Albert; H.R.H. Albert Prince of Wales; H.R.H. the Princess Royal; the Duchess of Sutherland; the Duchess of Buccleuch; the Duke of Norfolk (official); the Duchy of Lancaster; the Hon. Society of Lincoln's Inn; the Hon. East India Company; and the Goldsmith's Company. Initial letters from the eighth to the sixteenth centuries. Miscellaneous seals, &c.

Sketch, on steel, of a Government official seal.

[By the application of machinery to a die similar to that exhibited, a thousand dies could be obtained, if necessary; so that the whole of the Government official seals and dies might be made eventually at a cost, perhaps, of little more than that of the metal of which they are made.]

289A WOODHOUSE, W., 23 Maresworth Street, Dublin—
Engraver.

Bronze metal head of Her Majesty the Queen, struck to commemorate her visit to Ireland; arms of Lords Downshire and Clancarty; impressions in bronze awarded by the Royal Dublin Society, in silver; various medals in bronze and white metal.

Specimens of medal dies made on a new principle, pure cast steel being used, which is more manageable, and, from the smallness of the dies, an economy of material is the result; specimens of dies on the old principle.

290 BUTTERS, L., 41 George Street, Edinburgh—
Engraver.

Intaglios, heads of Scott and other eminent men; onyx stones cut as cameos; and specimen impressions of seal engraving.

291 WILBUD, J., 6 King Street, Snow Hill—Producer.

Profile bust of Shakspeare, cut from a common plaster of Paris medallion, made to imitate ivory, and equal to it in hardness.

292 WESTWOOD, JOHN OBADIAH, Hummersmith—
Proprietor.

1. Electrotpe cast, representing the statue of George III. at Charing-cross, from a die engraved by the late John Westwood.
2. A similar cast, of the statue of the Duke of Wellington at the Royal Exchange, by the same.
3. Specimen of die-sinking in brass, representing the Portland Vase, executed by the same.
4. Another, representing a profile portrait of George IV., executed by the same.
5. Specimens of deeply embossed boxwood (for snuff-box), with bust of George IV., executed by the same.
6. Another, representing the late Marquis of Hastings, by the same.
7. Small frame of buhl work (inlaid brass and ebony), manufactured by the same, containing a bronze medallion of the "Presentation in the Temple," in imitation of the chased work of the Louis XIV. period, also by the same.
8. Three specimens of ivory and ebony knife handles, embossed and studded in silver by the patent process of the late John Westwood.

293 GRAY, ELIZA MARIA, 5 Charles Square, Hoxton—
Designer and Manufacturer.

Group of flowers made of human hair.

294 ROUW, PETER, 13 Denmark Terrace, Islington—
Modeller.

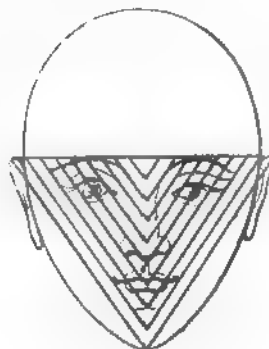
Medallie portraits, in wax, of the late Matthew Bolton, Esq., Soho; the Princess Charlotte, Mrs. Prodgers, Miss Masters, Stephen Ardenoff, Esq., George the Fourth, Don Miguel, and an infant.

295 SELLERS, J., Sheffield—Manufacturer.

Steel plate, size thirty-six by twenty-six and a half inches, machine ruled. Exhibited to show its fitness for the etcher and engraver.

296 HOPLEY, EDWARD, 16 University Street—
Inventor.

The triangular, equilateral, and equidistant arrangement of the features; exhibiting a design for a simpler scale of physiognomical measurements, represented in the following cut.



Hopley's Physiognomical Scale.

This is an attempt to enable the statuary or painter, through observing the relation of the features to the facial angles, to realise the proportions of the different parts of the face.

297 MELTON, —, Edinburgh—Producer.

Specimens of printing in colours.

298 HARNER, H. R., Great Yarmouth—Producer.

Four "sun" pictures of various subjects.

It may be almost regretted that the term "sun painting" has not been substituted for that of photography or light-painting. Many phenomena appear to indicate the existence of at least three distinct principles, or modifications of one principle, in the solar ray—light, heat, and actinism; and those effects upon substances sensitive to impression, by which pictures are produced, are apparently produced principally by the actinic, and not by the luminous or calorific rays. Photographic pictures, therefore, whether on plate, paper, glass, or porcelain, are most properly described as sun-drawn rather than as light-drawn.—R. E.]

299 ROSS & THOMSON, Edinburgh—Producers.

Frames containing Talbotype pictures from negatives on albuminised glass.

[The albuminised glass is prepared by mixing a small quantity of iodide of potassium with the white of egg, and uniformly spreading this solution on a glass plate. The thin film being carefully dried, is rendered sensitive by being washed with the gallo nitrate of silver previously to its being placed in the camera.—R. H.]

300 HILL, DAVID OCTAVIUS, Calton Hill Stairs, Edinburgh—
Producer and Designer.

Calotype portraits, individuals, groups, &c. Calotypes of fishermen and women of Newhaven, near Edinburgh. Produced by the exhibitor and the late R. Adamson.

[The calotype process consists essentially in spreading upon paper a uniform film of iodide of silver, and of exciting this by the action of a combination of gallic acid and nitrate of silver previously to its being placed in the camera obscura.—R. H.]

301 BUCKLE, SAMUEL, *Peterborough*—Producer.

A series of pictures from nature, taken by Talbot's photographic process called calotype.

The subjects are in Peterborough and its neighbourhood, and at Bury St. Edmund's. Printed from paper negatives. (*Main Avenue, West.*)

[A paper negative is the picture impressed in the camera. It is so called because the lights and shadows are all reversed in it, that which is shaded in nature being represented in the photograph by light parts, and the reverse. By laying this negative upon a paper covered with chloride of silver, and exposing to sunshine, a correct picture is obtained on the latter. This is called "printing," in the language of photography.—R. E.]

302 BURNARD, NEVILLE, 36 *High Street, Eccleston Square*—Designer and Sculptor.

Colossal bust—"The Prince of Peace."

303 FOSTER, ERASMUS ROBERT, 1 *Prince's Street, Bank*—Importer.

An ornamental stone vase, carved out of the rock of Malta, by a native of the island.

304 WILLSON, T., *Crescent Buildings, Leicester*—Modeller.

Model of the Victoria pyramid—proposed to form the centre of the British metropolitan necropolis, to be erected on Woking Common, in the county of Surrey—in stages ten feet each in height, to be covered externally with blocks of granite. The base to occupy an area of eighteen acres. Its height, when completed, to be 900 feet, and to be capable of containing five millions of coffins, each side of the base measuring 900 feet in length. Designed by J. Willson, Architect, London.

305 CARBUTHERS, WILLIAM, *Reigate*—Sculptor.

Model of the new church at Southwater, Sussex, in Reigate stone. Designed by J. P. Harrison.

306 LUCAS, RICHARD COCKLE, *The Firs, Otterbourne, near Winchester, Hants*—Designer and Manufacturer.

Ivory carvings:—The Nativity; the naming of St. John the Baptist; the Raising of Lazarus; the Descent from the Cross; seal of Richard, Bishop of Durham; the Minerva of the Parthenon; Iris descending; Jupiter; Proserpine; Iris the messenger; Venus and Adonis; Young Apollo; the Graces teaching Love; the Graces; Venus; Ariadne; Galba; Leander.

Imitation bronzes:—Young Bacchus; an athletic figure with a Cestus; a martyr; Neptune and Minerva of the western pediment of the Parthenon; a study of the Portland vase; Jupiter; Iris; Proserpine.

307 BISS, JOHN, *Bradnich, Cullompton*—Designer and Manufacturer.

Carved Tudor bed-posts, made of walnut tree, by the exhibitor, a thatcher. The columns are 9 feet high, and 18 inches square at the base, resting on lion's claws; in front is the date, 1851; on the various panels are the Prince of Wales's plume and motto, the crown of Henry VIII., and his queen, Catherine, with the letters H. K., taken from a crown gold piece of that date; the arms of the corporation of Bradnich, and motto; the Queen's crown, with V. R.; the representation of a lamb with six legs, that was dropped on the owner's (H. Matthews, Esq.), property, and is now in good health, with the motto, "Peace and Plenty" (the lamb representing the former, the six legs the latter), and the Tudor rose and motto. Above the squares are several bosses, carved in foliage of oak, ivy, &c., the whole being carved out of solid wood.

308 BAILY & SONS, 71 *Gracechurch Street*—Manufacturers.

Ornamental castings in iron, bronzed. Cast of a fly in bronze, from nature, by W. Midworth, of Mansfield.

309 NORCHI, EGISIPPO, 18 *King William Street, Strand*—Manufacturer.

1. Bacchanalian vase, in serpentine marble. The Warwick Vase was discovered in the year 1770, whilst excavating and draining the lake called Pantanello, a place anciently situated within the precincts of the Adrian villa, near Tivoli; it was brought to England by Sir W. Hamilton, Ambassador at the Court of Naples, and presented to the Earl of Warwick. The copy here exhibited is an Italian work in serpentine marble, 5 feet 6 inches in height, and 3 feet in width. From two interlaced handles proceed vine branches, which adorn the upper part of this work, illustrating the character of art in the age of Adrian, when the original was executed. A lion's skin surrounds the cup, where heads, masks, thyrsi, and other ornaments consecrated to Bacchus are seen lying. Rich foliage adorns the great body of the vase, which is placed upon a basis resting upon a column, surrounded by a vine branch.

2. Sabina, in serpentine marble, a copy of the celebrated group of Giovanni Bologna da Dovai. This sculptor was a Fleming, employed constantly for many years in Italy. In the base is another group alluding to the same event. The total height is 7 feet 6 inches. See "Bocchi, Beauties of the City of Florence," p. 37, Florentine edition of 1591. Baldinucci, vol. vii. p. 87. Vasari, p. 1113, and elsewhere, Florentine edition of 1832-38. This group is represented in Plate 27.

[Cigoguarda says of this artist and his time that a great facility of execution and universal imitation of Michael Angelo, rather than of nature, destroyed the originality. Rapid in execution, lively, a good composer, but affected while seeking grace, and exaggerated to display skill.—H. T. H.]

3, 4. Two large vases in agate, very full in foliage. Bacchanalian masks, composed on the best antique model, 7 feet 6 inches high, from a very ancient jug in bronze, in the Museum at Volterra. One of these vases is represented in Plate 32.

310 AITKEN & ALLAN, 102 *Prince's Street, Edinburgh*—Designers and Manufacturers.

Pier-table and mirror-frame, in carved wood, with design representing the seasons, Peace, War, Commerce, Navigation, Science, Art, and the general progress of civilization.

311 DE LA BOND, COUNT—Producer.

Specimens of wood carving by machinery.

312 CUFF, R. P., 7 *Owen's Row, Goswell Road*—Producer.

Design for a pendant hall-lamp for gas.

313 AUSTIN, WILLIAM, *Lincolns Dockyard*—Producer.

The "Crucifixion." The object of the artist has been to exhibit, both in the expression of the countenance and the convulsion of the figure, the "Last Agony."

314 CASTLE, J., *Cowley Road, Oxford*—Designer and Sculptor.

Baptismal font, in Caen stone, enriched with four compositions in alto-relievo, and symbolical decorations of fruits, foliage, &c., studied from nature, and adapted to conventional architectural forms.

315 WILSON, JOHN, 20 *Leicester Square*—Designer and Engraver.

Red cornelian onyx intaglio, "The parting of Hector and Andromache."

Cameo, of three strata, made to imitate the original in different coloured pastes. The subject—"The marriage of Alexander and Roxana."

316 KAULBACH, EDWARD, 5 *Duke Street, Grosvenor Square*—Designer and Modeller.

Satan apostrophising the Sun. From Milton's *Paradise Lost*.



Tom Tower, Christ Church; and the Churches of St. Mary Magdalen and St. Aldates, in Oxford. The Queen's marine residence, Osborne House, in the Isle of Wight; and the race stand at Goodwood.

Medals of the Martyrs' Memorial, at Oxford, with the commemorative inscription on the reverse side, in silver, electro gilt, bronze, and white metal.

Silver embossed work, consisting of card-cases, baskets, tablets, and vinaigrettes, ornamented with views of Oxford in relief.

Specimens of embossing, in colours, on writing-paper and envelopes, comprising the arms of several colleges in Oxford, and other official and private seals.

Charts of the eight-oared Oxford boat-races, from 1837 to 1850, printed in colours.

"A Memorial for Visitors to Oxford," being an illustrated card of business, containing views, maps, and general local information useful to the visitor and tourist, framed and mounted for use. See Class 17, No. 208.

362 SKINNER, —, *Sheffield*—Producer.

Fac-simile of chasing and engraving on metals, done by means of printing.

363 STEEDMAN & Co., *Charles Street, Hamstead Road*—Producers.

Specimens of jappanning on slate, and altar decorations.

364 HORNER, G., *53 Rathbone Place*—Producer.

Painted decorations.

(The above two are placed on the South Wall.)

365 JOHNSON W., *10 Muddleser Place, New Road*.

An electrotype of Harman's shield of Achilles, from the original in the possession of Her Majesty.

366 HEFFLE, EDMUND, *Blackheddon House, Northumberland*—Proprietor.

A genealogical chart of the ancient families of Great Britain, deducing their descent, through a space of one thousand years, from Charlemagne and Egbert, and showing their consanguinity with all the sovereigns of Europe, who are traced back to Edward I. King of England, their common ancestor.

367 WHITE, JOHN WILLIAM, *34 Montague Square*—Inventor and Designer.

A duck's egg-shell, empty, and perforated with one hundred and thirty holes, about the size of a clove, after the manner of the Chinese ivory balls, and resembling fine light porcelain or Dresden china.

SCULPTURE COURT.

AREAS Q. TO S. 28, 29.

1 BROWN, ALFRED, *4 Red Cross Square*—Designer.

"David before Saul," a statue in plaster.

2 KIRK, J. R., A.R.H.A., *Jervis Street, Dublin*—Sculptor.

An original group, cast in plaster, "The creation of the dimple."

*Stilla in mento impressa Amoris digitato
Vestigia demonstrant molitundina.*

3 HUGHES, THOMAS, *28 Long Acre*—Designer.

Plaster figure of Eve convicted:—"The serpent me beguiled, and I did eat."—*Paradise Lost*.

4 FOLEY, J. H., A.R.A., *19 Osnaburgh Street, Regent's Park*—Sculptor.

The Wanderer.

5 DURANT, SUSAN, *14 Conduit Street West*—Designer and Sculptor.

Group in plaster, "Belisarius."

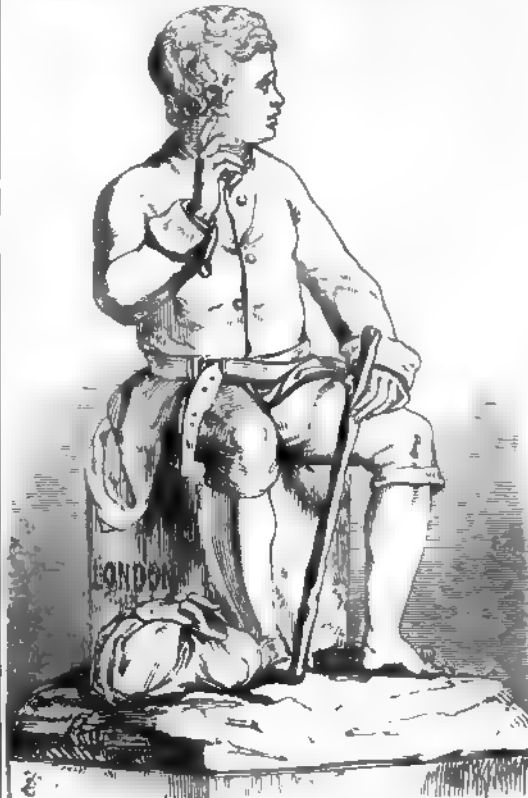
6 JENNINGS, B., *Hereford, and 17 Lower Eaton Street, Grosvenor Place, London*—Designer and Sculptor.
Marble bust of "The Madonna."

7 THOMAS, I. EVAN, *7 Lower Belgrave Place*—Sculptor.
Science (alto-relievo). The Spirit of Science unvailing Ignorance and Prejudices. The clouds of error recede before the light of truth.

8 LEGREW, JAMES, *1 St. Alban's Road, Kensington*—Designer and Proprietor.
Group, Cupid stung by a Bee, complains to Venus. Statue, Mumora.

9 CAREW, JOHN EDWARD, *40 Cambridge Street, Hyde Park*—Designer and Sculptor.
Alto-relievo—Baptism of Christ.

10 CAREW, JOHN EDWARD, *40 Cambridge Street, Hyde Park*—Designer and Sculptor.
Whittington listening to Bow bells—original model. This statue is represented in the following cut.



Carew's Statue of Whittington.

11 CAREW, JOHN EDWARD, *40 Cambridge Street, Hyde Park*—Designer and Sculptor.
Alto-relievo for a temple in Suffolk.

12 THOMAS, J.—Sculptor.
Nymph and sea-horse.

13 TREED, W., *12A Henrietta Street, Cavendish Square*—Designer and Sculptor.
Statue of Prometheus.

14 HOGAN, J., *14 Wentworth Place, Dublin*—Designer and Sculptor.
A drunken faun.

- 15 MARSHALL, W. CALDER, A.R.A., 47 *Ebury Street, Eaton Square*—Sculptor.

Sabrina; statue in marble.

Sabrina fair,
Listen where thou art sitting,
Under the grassy, cool, translucent wave,
In twisted braids of lilies halting
The loose train of thy amber-dripping hair;
Listen for dear honor's sake
Goddess of the silver lake
Listen, and save.—*Milton's Comus.*

- 16 EARLE, T.—Sculptor.
Ophelia.

- 17 MILLER, FELIX MARTIN, 24 *Bloomfield Terrace, Pimlico*—Sculptor.
Group—Childhood.

- 18 FARRELL, T., 132 *Lower Gloucester Street, Dublin*—Designer.
"Early sorrow," sculptured in marble.

- 19 FOLEY, J. H., A.R.A., 19 *Osnaburgh Street, Regent's Park*—Designer and Sculptor.
Ino and the infant Bacchus.

- 20 SHARP, THOMAS, 27 *Burton Crescent*—Designer, Modeller, and Sculptor.
Statue, in marble, of a Boy and Lizard.

- 21 EARLE, T.—Sculptor.
Pastorella.

- 22 LAWLER, J., 30 *Wyndham Street, Bryanstone Square*—Designer and Executor.
A Bather,—statue in plaster.

- 23 CAMPBELL, T., 16 *Great Marlborough Street*—Sculptor.
Portrait of a lady as a Muse.

- 24 BELL, JOHN, 15 *Dowry Place, Victoria Road, Kensington*—Sculptor.
Sculpture, life size—Purity, or Una and the Lion.

- 25 KIRK, W. B., A.R.H.A., *Jervis Street, Dublin*—Sculptor.
Original group in plaster, "Pastoral age."

- 26 SHARP, THOMAS, 27 *Burton Crescent*—Designer, Modeller, and Sculptor.
Model, in plaster, of "Christ's charge to Peter."

- 27 PAPWORTH, EDGAR GEORGE, 17 *Newman Street, Oxford Street*—Sculptor.
"Cupid in disguise."

- 28 ———.
"Cupid and a swan."

- 29 RITCHIE, JOHN, 62 *Princes Street, Edinburgh*—Designer.
Statue, in marble, of a Poetess.

- 30 McDONNELL, —, *London*—Producer.
"Mother and child," by a deaf and dumb artist.

- 31 FARMER, P., 4 *Hawley Terrace, Camden Town*—Designer and Modeller.
Frieze, designed for a marble dining-room chimney-piece. Frieze of scroll ornament, with figures of children, and goat's head in centre, composed in vine leaves.

- 32 SUMMERS, CHARLES, 86 *Warwick Street, Pimlico*—Designer and Modeller.
Statue, in plaster, of Boy playing with shell.

- 33 FRANCIS, J., 56 *Albany Street, Regent's Park*—Sculptor.
Statue of Her Majesty, in Carrara marble.

- 34 THORNYCROFT, THOMAS and MARY, 30 *Stanhope Street, Hampstead Road*—Sculptors.

Statues—The Prince of Wales and the Princess Roy as a young shepherd, and a gleaner. These statues are represented in the accompanying Plates 143, 144.

- 35 NELSON, GEORGE, 30 *Bidborough Street, Burton Crescent*—Sculptor.

Alto-relievo, cast in plaster, a figure of Victory, design for a monument to the memory of the officers and men of the 50th Regiment, Queen's Own, who fell on the bank of the Sutlej, in India, during the campaigns of 1845-6.

- 36 STEPHENS, EDWARD B., 37 *Upper Belgrave Place, Pimlico*—Designer and Inventor.

"Eve offering to Adam the forbidden fruit:"—

from the bough
She gave him of that fair enticing fruit
With liberal hand;

"The Expulsion from Paradise:"—

They, hand in hand, with wandering steps and slow,
Through Eden took their solitary way.

"The Curse:"—

children thou shalt bring
in sorrow forth.
In the sweat of thy face shalt thou eat bread,
Till thou return unto the ground.

"The Death of Abel."—

Whereat he lily rag'd, and, as they talk'd,
Smote him into the midriff with a stone,
That beat out life; he fell.

- 37 ADAMS, G. G., 5A *Eccleston Street East, Pimlico*—Sculptor.

Murder of the Innocents. The accompanying Plate 146, represents this group.

- 38 MILLER, F. M., 24 *Bloomfield Terrace, Pimlico*—Sculptor.

Bas-relief, brothers and sisters in "Comus."

- 39 THRUFF, FREDERICK, 30 *Gloucester Place, New Road*—Designer and Sculptor.

Group in plaster of Paris, "The maid and the mischievous boy."

- 40 JONES, J. E., 11 *Upper Charlotte Street, Fitzroy Square*—Designer and Producer.

Group of children and animals, portraits. The accompanying Plate represents this group.

- 41 MUNRO, ALEXANDER, 33 *Brewer Street, Golden Square*—Sculptor.

Francesca di Rimini and Paolo.

- 42 TAYLOR, F., *Romsey, Hampshire*—Designer and Sculptor.

Life-sized figure of Our Saviour bearing the Cross.

- 43 GALLAGHER, JOHN, 10 *King Street, Regent Street*, —Designer and Producer.

Design for a fountain in plaster, "Ariadne disconsolate at the loss of Theseus."

- 44 SMITH, C. R., 37 *Gloucester Place, New Road*—Sculptor.

Statue in mediæval costume: Lady Danberry.

- 45 JONES, J. E., 41 *Upper Charlotte Street, Fitzroy Square*—Designer and Producer.

Marble statuette, "the Favourite," portrait.

- 46 KIRK, JOHN, *School of Design, Birmingham*—Designer and Modeller.

Basso-relievo, in plaster, "Spiritless, afflicted, fallen,"—*Milton's Paradise Lost.*

- 47 PHYSICK, EDWARD JAMES, 6 *Gloucester Place, New Road*—Designer and Modeller.

Pluto carrying off Proserpine.

By Pluto snatched away:
Love urged him to the deed.—*Ovid.*

POTTER, T.—Producer.

Spandril from Hereford Cathedral, designed by N. J. Cottingham; carved by Boulton and Swales. Statuettes,

&c. Brass lectern for Hereford Cathedral, designed by Cottingham; executed by the exhibitor. The following illustration represents the spandril.



Potter's Hereford Cathedral Spandril.

PURDY, CHARLES WILLIAM, *Warrick Street, Pindar*—
Designer and Executor.

Gothic monument, of the decorated style; period, fourteenth century: the inscription tablet represents a roll of parchment, supported by two angels, &c. At the bottom is an angel with a shield, supporting the whole; there is a canopy over the top, richly carved.

ROSS, HON. HARRIET M., *Bladensburg, Rosstrevor, Ireland*—Designer and Sculptor.

Monumental Irish cross, of Caen stone, illustrating, in bas-relief, portions of Holy Writ. Moses raising the serpent, Abel's sacrifice, Noah entering the ark, the translation of Elijah, and the heads of the prophets Isaiah, Jeremiah, Ezekiel, and Daniel.

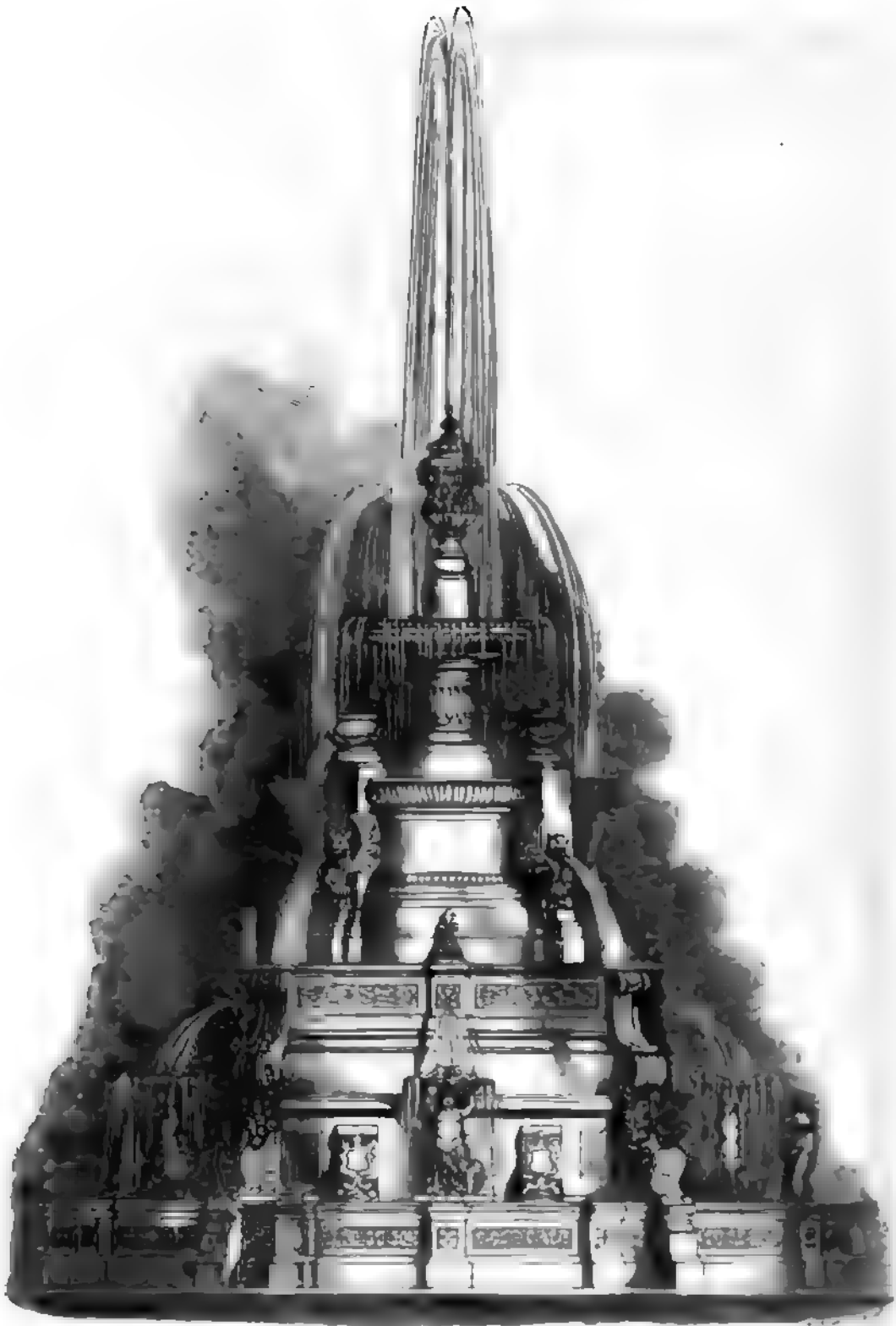
The New Testament subjects are the Crucifixion, the Return of the Prodigal Son, the Good Shepherd, the Resurrection, and the heads of St. Peter, St. John, St. James, and St. Paul.

SEELEY, JOHN, *Keppel Row, New Road*—Manufacturer.

Fountain, suitable for the market-place of a provincial town; artificial stone, tested for twenty years. Registered design by J. W. Papworth, architect, 14 Great Marlborough Street. The accompanying Plate 82, represents this fountain.

SIDSON, HENRY, *25 Dover Cottages, St. John's Wood*—
Designer and Proprietor.

A recumbent full-sized figure in plaster of Paris—"The dying shipwrecked Sea-boy."



92.

FOUNTAIN. MARMA, GILLEY & CO.

energy of the Governments, and the efficiency with which the several Local and General Committees have performed their respective tasks, are self-evident, from the extended series of objects displayed in the Indian compartment of the Exhibition, and which are sufficiently complete to give a good general idea of the resources of the country and of the habits of the people, as well as of their ingenuity, skill, and taste as manufacturers. The only defect is the absence of the names of many of the parties from whom the articles were purchased by the Government officers, as this may deprive some of them of the distinction of a reward to which the article may appear to be entitled.

The Central Committee at CALCUTTA was presided over by Sir Lawrence Peel, with Dr. J. M'Clelland as Secretary. The following Local Committees were established within the limits of the Bengal and Agra Presidencies :—

<i>Singapore</i>	The Hon. Lieut.-Colonel Butterworth, C.B., T. Oxley, M.D., Secretary.
<i>Moulmein</i>	Major A. Bogle.
<i>Arrakan</i>	Captain A. P. Phayre.
<i>Chittagong</i>	R. Torrens, Esq., C.S.
<i>Assam</i>	Major F. Jenkins; Captain E. A. Rowlett.
<i>Dacca</i>	R. H. Mytton, Esq., C.S.
<i>Moorshedabad</i>	T. Taylor, Esq., C.S.; Lieut. T. P. Layard.
<i>Cuttack</i>	F. Gouldsbury, Esq., C.S.
<i>Chota Nagpore</i>	J. H. Crawford, Esq., C.S.; Lieut. Jas. Emerson.
<i>Patna</i>	G. Gough, Esq., C.S.; E. Lushington, Esq., C.S.
<i>Benares</i>	E. A. Reade, Esq., C.S.
<i>Allahabad</i>	R. Temple, Esq., C.S.
<i>Rohilkund</i>	H. Pidcock, Esq., C.S.
<i>Agra</i>	W. H. Tyler, Esq., C.S.
<i>Delhi</i>	Sir T. Metcalfe, Bart., C.S.
<i>Meerut</i>	C. Gubbins, Esq., C.S.

A Committee was further established, under the Board of Administration, at Lahore, consisting of R. Montgomery, Esq., C.S., as President; Major M'Gregor and Mr. H. Cope as Members; and Lieut. Tronson, Secretary. Articles from the Punjab generally, from Lahore, Loodianah, Puttialla, Saharrunpore, Jullundur, Kangra, Cashmere, and Huzara were obtained by this Committee, and sent down the Indus to Bombay, whence they were brought, *via* the Red Sea and Mediterranean, to Southampton.

Communications were also sent by the Government of India to the different native Governments of Lucknow, Nepal, Gwalior, Nagpore, Hyderabad, &c., from most of whom contributions have been received, as enumerated in the following Catalogue; and to the Governor-General's Agent in Rajpootana.

In the BOMBAY Presidency a Central Committee was established, with Sir W. Yardley as President, Dr. Henry Carter as Secretary, and Dr. Gibson as Corresponding Member.

Local Committees were established in Scinde under the Commissioner, R. Pringle, Esq., with Captain Freely as President at Kurrachee, and Sub-Committees at Hyderabad and Shikarpore.

<i>Aden</i>	Captain S. B. Haines.
<i>Ahmedabad and Kaira</i>	C. M. Harrison, Esq.; Assistant-Surgeon Leaward.
<i>Surat and Broach</i>	W. C. Andrews, Esq., C.S.; A. K. Forbes, Esq.
<i>Tinnah and Ruhnagerry</i>	J. S. Law, Esq., C.S.; Dr. Grierson.
<i>Candesh</i>	A. Elphinstone, Esq., C.S.
<i>Ahmednuggar</i>	R. Spooner, Esq., C.S.; Captain Gaisford.
<i>Poona</i>	Col. Grant, B.E.; J. H. Pearl, Esq.
<i>Belgaum</i>	H. W. Reeves, Esq., C.S.; Capt. Shortrede.
<i>Sholapore</i>	J. D. Inverarity, Esq., C.S.; R. Hoskins, Esq.

Communications were also sent to His Highness Meer Ali Moorad, His Highness the Rao of Cutch, to Kattywar through H. Lester, Esq., to Baroda through Lieut.-Colonel Outram, and to Indore and Malwa generally through R. A. C. Hamilton, Esq., the Resident at Indore; Sattara to H. B. Frere, Esq.; Kolapore and Sawrit Warra, Major Jacob. From all which places contributions have been received.

In the MADRAS Presidency the Central Committee was presided over by W. A. Arbuthnot, Esq., with Dr. Balfour as Secretary; and Local Committees were established at the following places :—

<i>Bellary, including Cuddapah and Kurnool</i>	Brigadier-General Steel, C.B.
<i>Canara</i>	T. L. Blanc, Esq.
<i>Coimbatore</i>	E. B. Thomas, Esq.
<i>Ganjam and Vizagapatam</i>	Walter Elliott, Esq., C.S.
<i>Rajahmundry, Guntoor, and Masulipatam</i>	Walter Elliott, Esq., C.S.
<i>Madura and Tinnivally</i>	C. R. Baynes, Esq.
<i>Trichinopoly and Salem</i>	T. E. J. Boileau, Esq.
<i>Tanjore</i>	J. F. Bishop, Esq.
<i>Malabar</i>	H. V. Conolly, Esq.
<i>Travancore and Cochin</i>	Major-General Cullen.
<i>Mysore</i>	The Commissioner of Mysore.

The Central Committee of Madras express themselves particularly indebted to the exertions of the Bellary Local Committee, and to those of the following gentlemen:—J. Rhodes, Esq., Colonel Tulloch, C.B., Captain R. L. Ogilvie, D. Mayew, Esq., Rev. C. F. Muzzy, and Dr. Wright.

The Bombay Government, in issuing a notification on the subject, dated 10th April, 1850, justly observed—
“An equally favourable occasion is not likely again to offer for making Europeans acquainted with many of

the productions and manufactures of India, at present but little known. The man of science, the merchant, the manufacturer, and the artist will be prompted to visit the Exhibition of 1851, not so much by curiosity as by interest, and each and all of them will find their account in encouraging a demand for such of these productions as may prove to be valuable from their properties or likely to be brought into request by their ingenuity or the delicacy of their workmanship."

The General Committee of the Presidencies of Calcutta and Bombay, as well as the Local Committee of Singapore, prepared lists of the articles sent, arranged according to the classification issued by the Scientific Committees appointed by the Royal Commissioners in the spring of the year 1850. The Bombay and Singapore Committees have sent with their lists observations respecting several of the articles sent. The Calcutta Committee printed their list, of which several copies were received and many have been distributed; but, unluckily, a series of numbers differing from those under which the articles were sent have been employed in this Catalogue. The Madras Committee have printed the whole of the Reports received from their Local Committees, and a great mass of valuable information for future use has thus been brought together. Extracts have occasionally been made from these several documents; but the following Catalogue was prepared from the Invoices as they arrived, and according to the thirty Classes of the Head Juries.

SECTION I.—RAW MATERIALS AND PRODUCE.

CLASS 1.—MINERAL PRODUCTS.

[From the southern portions of India approaching so near to the Equator, while its northern provinces are nearly in the latitude of the southern parts of Europe, we may form some idea of the great extent of Indian territory, and be prepared to find great diversities of climate and consequently of the productions of every kingdom of nature, from the long-extended coasts, washed by a tropical ocean, to the tops of the several ranges of mountains, among which, as among those of the world, the Himalayas stand pre-eminent, whether we consider their extent or elevation, their diversity of climate, or of production.

As the form and slope of the country, the direction of the rivers, and the climate of the different parts, depend in a great measure on the direction and elevation of the mountain ranges, as well as the soil on their mineralogical composition, it is obvious that before proceeding to their mineral contents or to other subjects, we should first obtain a general idea of the number and position of the several mountain ranges of India, and this may be conveniently done by taking them, as they naturally form separate ranges:—first the Western and secondly the Eastern Ghauts, which run parallel to the Malabar and Coromandel coasts; thirdly, the Vindhya or Central zone of India, extending all across the continent of India, from Monghir and Rajmahl, on the Ganges, to the hilly tracts of Guzerat, on the West; fourthly the Himalayas, which form the great north-eastern boundary of India.—ROYLE. *Introduction to Himalayan Botany*.

Few minerals or ores of metals have been sent from the Himalayan mountains, though these abound in iron, copper, and lead. The mines have only been worked superficially, but it is doubtful whether they would repay any great outlay. Graphite has been found in Kemaon, and traces of lignite in the tertiary formation, where the immense deposit of fossil bones have been discovered.

From the extreme eastern and western points of the Central zone, that is, from the Saone and Kane rivers on one side, and from Cambay on the other, a great variety of agates and cornelians have been sent. From the different States which intervene between the ramifications of this range and the great desert on the north-west of India, we have ores of metals and specimens of marbles, with works in stone and marble. Mines of copper and of lead occur in these regions, and iron is abundant. The only large collection of minerals which has been received is from the Madras Presidency, in which the variety of kaolins are

particularly interesting. These are likely to be useful in the arts, and some of the earths as colours.

The deposits of coal stretch across India from east to west, that is, from Assam into Silhet and Burdwan, and along the course of the Nerbudda, as well as in the western district of Cutch.

From the Tennesserim coast, as well as from Borneo, oxide of tin has been sent, as well as sulphuret of antimony from the latter, where both are very abundant.]

1. Metals and their Ores.

INDIAN IRON AND STEEL COMPANY, *Beypore, near Calicut, Malabar, and at Porto Novo, near Cuddalore, Carnatic*. Office in London, 10A King's Arms Yard, Moorgate Street—Producers, Manufacturers, and Importers.

Specimens of the ores and charcoal used, viz.:

Magnetic oxide, from Salem and South Arcot.

Crystals of the magnetic ore.

Ore as prepared for the blast furnace.

Argillaceous iron-stone, from South Arcot.

Charcoal used in the manufacture.

Specimens of the pig iron from the blast furnace.

The pig iron refined.

Specimens of annealed castings made from the pig, viz.:

Chain 5-16ths, cast entire in links.

Flier used in worsted spinning, hitherto made only of wrought iron.

Springs cast, as the above, from the pig iron, and drawn down. Onions' patent.

Specimens of the wrought iron:—

Bars fractured to show the fibre and colour.

Specimens worked and twisted cold, to show tenacity and flexibility.

The iron drawn into wire, Nos. 7, 18, 22, 25, 30, to show ductility and tenacity.

Specimens in screws, horse nails, rollers, axles, gun-barrels, &c.

The bar iron for steel purposes:—

Bar steel.

Cast steel ingot, showing its colour and crystallisation.

Cast-steel drawn to sizes, and fractured to show colour and temper.

Specimens of files, saws, chisels, gouges, and plane-irons.

Table knives and carvers.

Razors, scissors, and knives, fine cutlery.

Sword blades.

[From these magnetic ores of iron the "Wootz," or Indian steel, is made by the natives; also malleable iron by the direct process. The ore when cleaned from the quartz with which it is found combined, is shown by analysis to contain 72 per cent. of iron with 28 of oxygen, and traces of manganese and lime without any other

admixture. The manufacture of iron in India from these ores by European methods was established by this Company some years ago, and their produce has been imported to a considerable extent into this country, but chiefly in the shape of pig iron hitherto. Charcoal is exclusively used as fuel in the manufacture.]

Specimens of chrome ore from the Company's mines in the Salem districts.

Samples of the chromate and bichromate of potash manufactured from this ore.

Dr. Andrew Ure found this ore to be 30 per cent. richer in colouring matter than the best Baltimore ore.

Iron ore; cutties, or blooms of iron; palms, or bars of iron; vuttoms, or pieces of cast steel, as it came from the clay crucible; ollies, or bars, drawn out from clay crucibles; small bag of iron beads which ooze out from the blooms in the blast furnaces; steel made from the blooms in the same kind of blast furnace, and used in making edged tools—from Salem.—F. G. Fischer.

R. A. C. HAMILTON, Esq., Indore.

1 Specimens of iron ore, iron, and the wood which is used in smelting it, from Indore.

The following is Mr. Hamilton's account of the process, with a section of the furnace.

"The furnace (A) in which the ironstone is melted is excavated out of the ground, about 12 by 10 feet, and 10 feet deep; the furnace is made of clay, plastered with cow-dung (heaped). Double (B) bellows are fitted, airtight at the bottom, worked by a man sitting between them. At the bottom of the furnace is an earthen sieve (C) through which the dirt and refuse drop. The holes are filled with earth at first, but this gives way as the iron melts and comes down; when choked the holes are opened by an iron poker (D), the drops and dirt fall to (E). The fire is formed of caked cow-dung (F) broken small, charcoal (G) and unjien (I) kheir (J) wood. The wood is put on the top part, a layer (H), ironstone broken the size of marbles is placed about one inch in thickness, then a layer of cow-dung (I) and charcoal, and so up to the surface, when the ironstone is piled about 18 inches, and covered in with the wood cut into small billets. After four hours' incessant plying of the bellows, the furnace has attained a heat which makes the first layer of stone melt and the dross fall through; the whole mass has become gradually heated, and as it falls, the stone on the top which is regularly served keeps falling into the furnace. In this way the furnace is plied and filled for 12 hours, the bellows going the whole time; the furnace is now left to cool, and according to the season, is ready to open in from 12 to 24 hours."

The iron will amount to about 40 lbs. weight, 20 seers, which at the pit, including digging the stone, fire-wood, and every charge, sells so that the profit averages one rupee per seer: the people consequently work only as their wants require, and not regularly.

Nothing more is done by this class of workmen: the iron is sold as it comes out of the furnace, and worked up by another class.

Iron ore and iron, from Cutch.—Rao of Cutch. Manufacture of iron in Cutch:—"In extracting the metal in Cutch, layers of very small pieces are disposed alternately with others of charcoal, in a rude open furnace, and exposed to the blast of two small bellows made of sheepskins. The metal when fused, falls into a hole at the bottom of the furnace, when it is transferred to an enclosed furnace, and subjected to similar blasts until brought to a white heat, when it is taken out and beaten into a bar. No flux of any kind is used."—*Captain Grant's Geology of Cutch*, page 293.

Details of the expenses of manufacturing 140 lbs. of iron:—

	Corries.
One cart-load of material	2
Miner	1

	Corries.
Master	1½
Manager of charcoal	½
Director of second furnace	1½
Three hammer-men	2½
Two bellows-men at ½ each	1
Four bellows-men of ¼ each	3
A breaker of the material for each cart-load	½
Cart of charcoal	8
Second smelting charcoal	3
Tax for five maunds or 140th, (a day's produce)	5
Sundries for beggars, hire of bellows, &c.	2½
Tobacco for men	½

Total 32 or 16s.

"This is the cost of one day's produce, or five maunds, at 40 seers a maund, one seer-weight, 40 piece-weight.

"A cart-load of mineral, after 18 hours' smelting in the open furnace, yields 10 maunds (280 lbs.) of pig iron, and that again yields 5 maunds (140 lbs.) after 9 hours' smelting in the closed furnace."

Ironstone, Soane River.

Iron ore bisulphuret embedded in stone, from Cuddapah.

Iron ores, magnetic, from Vizagapatam.

Iron ore and two pieces iron, from Mugraonee Mine, Gwalior.—Maha Rajah Rao Scindiah.

Iron ore and two pieces iron, Dhooab Mine.

Iron, smelted, and iron ores; ferruginous concretions, from Teroo, in Assam.—Capt. Brodie.

Iron ore and smelted iron, from Shahabad.—Rajah of Kotah.

Iron ores, from Talagaon.

Iron ore and unwrought iron, from Hazareebagh.

Iron, from Chota Nagpore.

Iron ore, from Coosya Hills. Iron sand, from Assam.

Bag of iron ore and iron, from Nepal.

Iron, from Banglee Mines, Bombay.

Iron ore, from Ulwar.—Rajah of Ulwar.

Iron ore, from newly-discovered mines in Beerbhoom.

Iron and steel in different stages, from Salem, &c.

Flat iron specimens; half-roasted iron; lump, crude, and raw iron; and iron smelted, from Coosya Hills.

Iron ore, from the Tennesseerim provinces. There is a large variety of iron ore in these provinces, some of which is very rich in metal, especially in the Tavoy District. Near the river-side, about three miles from the town of Tavoy, is a hill which, according to the local authorities, appears to consist almost wholly of magnetic oxide of iron. Common iron pyrites is also very abundant in the provinces.

Manganese, from the Mergui District, in the Tennesseerim provinces, where large quantities exist. It is not made use of by natives.

Antimony sulphuret, from Tennesseerim and Madras.

Smelted antimony, from Borneo.

Pyrites, from Cuddapah.

Copper ore from Ulwar and Beerbhoom.

Copper ore, from Bellary.

Copper ore, from Dhumuara.

Copper ore, from Tennesseerim and Nepal.

Lead of superior quality, from Sookpoor.

Lead ores and lead, from Tennesseerim and Nepal.

Lead ores, from Bhoondie and Beerbhoom.

Lead ore, supposed, from Singapore.

Tin ore, from Tennesseerim and Malacca.

Tin, from Malay Peninsula, &c.

Tin, oxide of, from near Mergui in the province of Tennesseerim.

Chromate of iron, from Salem.

Cinnabar, and in its original state. This is said to be superior, as obtained from Surat, to the China vermilion, but none has been supplied. Orpiment, from Nepal.

Gold dust, from Singapore and Nepal.

Gold-washers' sand, from Assam.—Major Hannay.

Silver box of gold-dust, villages of Kapoo and Nalam-

boor — from Ernaad Talook, Calicut, and Wynad, Malabar.

Bell metal, from Bellary and from Rajah of Kota.
Pewter, from Nepal.

2. Non-Metallic Mineral Products.

Moss agates, from Nerbudda, Soane, and Kane Rivers.
Species of agate, from Soane River, Kane, and Nerbudda.

Calcedony, from Soane River.

White agate, from Saugur.

Pebbles, from Soane River.

Agates, from Ahmedabad.

Bloodstones, from Kane River, &c.

Chittinundee, piebald or spotted, from Jubbulpore.

Grass stone, from Betool River.

— ? Bincole in Saugur.

Lapis lazuli, locality unknown.

— ? Kane River.

Carnelian, from Kumack.

— ? from Soane River.

— ? sort of gold stone, locality not known.

Carnelians and onyx, from Ahmedabad.

Jasper and marble, from Brinjal.

Strings of Nimblick beads, plain and diamond-cut carnelian, greenstone and mother-of-pearl beads; mother-of-pearl buckle, black stone earring drops; large and small pieces of crystal; carnelians for brooches, stones for clasps, bloodstones; gowries; large and small amethysts; large and small emeralds; rajawahs; assorted stones; serozahs; sapphires; cat's-eyes; garnets; romarocks; salamin-stone, blue-stone; turquoises. Purchased from native lapidaries of Calcutta.

Agates, &c from Cambay. The following account has been drawn up by Mr. Augustus Summers, senior apothecary, Cambay. —

Articles wrought by the Cambay Lapidaries.—(For sale to the gentry passing through Cambay, and sent to Bombay for the English, Calcutta, and other markets.)

The whole of the agates, bloodstones, and carnelians are made use of, and worked into models of cannon with carriage and appurtenances complete; slabs for boxes; sets of variety of slabs, twenty in number, to form a square table; cups and saucers, chessmen; flower-vases; pen rack, card and letter rack; watch-stands; inkstands; knife-handles; rulers, paper-cutters, paper-weights, pen-holders; sets of necklaces; bracelets and brooches of variety of patterns, crooked needles; silk-winders; marbles; braces and shirt-studs; seals; also rough specimens of stone having one side polished.

Articles prepared for the China Market.

Articles wrought for China comprise only two kinds, and are made up entirely of carnelian: first, the oval and square flat stones resembling watch-seals, large and small, named monzigoon, worn as armlets and dress ornaments; the other variety is the beads named here dhol, each necklace containing fifty beads, these are all plain, polished, and round. Vast quantities of the above are annually exported from this in chests to Bombay, for China, the extent of valuation is from 50,000 to 60,000 rupees annually.

Articles for the Mecca, Djedda, and Mecca Markets.

The descriptions of stone employed are the famed agate from Rhanpore, carnelians from Raitonpore, the cat's-eye, and the jet or obsidian; these are worked into large quantities of rings, both plain and ornamented; ring-stones, wristlets, armlets, and necklaces, embracing the following variety. —

Necklaces—Pey loodar dhol, cut beads; goocudar dhol, diamond cut beads; badami arr, almond-shaped necklace; khautee, oblong flat necklace; chawnelee, spear-shaped; madulyah, jawitch or jahwiz, composed of three stones; sadah khaute, plain round beads, used as a necklace and rosary.

Armlets and wristlets.—Mootes madalyah, composed of two stones, worn as a wristlet; pytah, a wristlet composed of seven round flat stones; pouches, a wristlet composed of several flat stones; byjootah, an armlet of one stone cut in different fanciful devices; tam ghool, single stones in shape of large flat scales.

Rings.—Rings are made of carnelians, of various devices, named ingotee, and riny; stones for setting, called moogeenas, are made of carnelian and the cat's-eye.

The articles for the Djedda and Mocha markets are packed up in chests, also in bales, with the cloths, and exported to Bombay and Veraval Bunder, near Dice, whence they are transhipped to their destination, and from thence they find their way into Arabia, Persia, Scindia, and Afghanistan, the merchants realising large profits by the sales effected.

Mode of Manipulation, or Process by which the different Articles are Wrought.

Beads.—The following is the process of making beads:—the stones are first broken into pieces of the size desired; an iron spoke, named Khoredia, is driven in the ground in an inclined direction with one point upwards; the stones are placed on this point, and chipped with a hammer made of iron till rounded; it is then passed on to the polisher, who fixes a number of equal size in a pair of wooden or bamboo clams, and rubs them on a coarse and hard polishing-stone called Dholin. They are then transferred to another man, who, securing them in wooden clams, rubs them against a ground polishing-board, named pattymar, on which is smeared a composition of emery and lac, turning the beads round so that every part of the surface may assume a globular form and become polished. The final polish is given by the beads so prepared being put from one to several thousands into a stout leather bag about 2 feet in length, and from 10 to 12 inches in diameter, with some emery dust and a very fine powder named warry, which is the sediment of the carnelians deposited in the earthen dish, partially filled with water, during the process of drilling holes in the beads, which is always collected and dried. The mouth of the bag is tied up, and a flat leather thong or tape is passed round its centre, and the bag is rolled towards each other by two men, seated at opposite ends of a room, from ten to fifteen days: the leather bag is kept moistened with water. When the beads have taken a bright polish, they are passed on to the people who bore the holes, which is effected by means of a steel drill tipped with a small diamond, during which process the spot is fed with water, drop by drop, passed through a thin narrow reel or metallic tube.

The cut beads are passed from the rough polishing-stone to the lapidary polishing and cutting-plate, and lastly the holes are drilled.

Knife handles. These undergo exactly the same process as the cut beads, adapting the shape to any pattern.

Cups and saucers, and any other hollow articles, are wrought according to the required external shape on the steel spike, and a rough polish given on the rough polishing stones the cavity is formed by the diamond-tipped drill to the depth of one-fourth of an inch all over the space until it exhibits an honey-combed surface—the prominent places round the holes are then chipped away; and this process is repeated until the depth and form desired is obtained, they are then polished upon prepared moulds of convex formation, and of the same composition as the polishing plates which are attached to the turning wheel.

Cannon. The bore of the cannon is effected by a drill with two diamonds to the depth required, afterwards five others in succession, of proportionate increase in the size, are substituted, each having an increase in number of diamonds placed circlewise, the last encircling as many as twelve diamonds.

Slabs, Paper-cutters, &c., are cut by means of a toothless saw made of iron, fixed to a light wooden frame, and the cut is fed with emery dust and

water. When the stone is small the saw is worked by one man, when large by two men. The stone to be operated upon is attached to a large wooden frame which is itself a fixture partly in the ground. The cement consists of a coarse description of beeswax with the fine fibres of new cloth, by means of which the stones are firmly attached to the wooden framework. Several men in a row are at the same time employed cutting through different pieces of stone.

Preparation of Polishing Plates or Dishes.

The plates or dishes are made of emery (named korunge and samadah), a species of corundum of greyish-black colour, glistening lustre, and granular concretion. Its fine powder is obtained by trituration and levigation: this, mixed with the seed-lac, forms the circular polishing plates, two in number. The first, or coarse-grained, is made in the proportion of three parts of ground emery to one of lac; the second, or finer, is made of two and a half pounds of finely-levigated emery to one seer of lac; a third, or finest polishing dish, is composed of warry and lac in equal proportion. Warry is the sedimentary deposit of cornelian in an earthen dish during the polishing

process. A copper dish is occasionally used for very hard stone, such as the Ceylon and other precious stones, and a wooden dish, made of deal or other fine-grained wood, is employed for polishing the softer description of stone.

The following description of the lapidary wheel is copied from the "Bombay Times":—

"Native Lapidary Wheel.—The wheel consists of a strong wooden platform, 16 inches by 6, and 3 inches thick. In this are two strong wooden uprights; between these is a wooden roller, 8 inches long and 3 in diameter, fastened into a head at the one end: this works on an iron spindle or axle at each end. On the one end the axle is screwed and fitted with a nut, by which the cutting or grinding wheel can be made fast. The lap-wheels consist of two circular discs or cakes of lac with ground korund, coarse or fine according to the work; of a copper disc for polishing the very hard, and a wooden one for finishing the work of the softer, description of stone. These are spun backwards and forwards by a bow, the string of which passes round the roller. The lapidary sits on his hams, steadying the wheel with his foot, and holding on the stone with his left hand while he works the bow with his right."

LIST of various AGATES, CORNELIANS, &c., wrought upon by the Lapidaries at CAMBAY.—14th June 1850.

Description of Stone.	Where Procured.	Quarried or how Procured; Size and Formation.	REMARKS.
Jasper, Heliotrope, or Bloodstone. —A beautifully-variegated stone of greenish basis. The green with flamed streaks, or red spotted delineations, is named by the lapidary Zuela Chantadur; those more variegated with green, red, and yellow tints, is named Putolia. It occurs in massive layers, is hard, with a dull fracture, and takes a high polish.	Near the village of Tunkaria, in the territory of the Moorvi Rajah, about 12 miles north of Rajcote.	Found on the hills named Bungaud, below the hill under the strata of soil, in massive layers from $\frac{1}{2}$ lb. to 40 lbs. in weight.	For permission to collect the stone, 8 annas per maund (40 lbs.) is paid to the Rajah, and 2 annas per each bullock-load for passing through his territory, and 4½ rupees bullock-hire to Cambay. A bullock-load contains 3 maunds, on which a town duty of 8 annas is levied at Cambay.
Mossagate. —Named by the lapidary Sowa Baju. This is a beautiful species of agate, of a very clear or clouded crystalline basis, with impressions of the dark-green moss, or green and reddish-brown moss delineations. Found in massive layers, often cracked in various ways. It is hard, and receives a fine polish.	Near the village of Tunkaria, in the territory of the Moorvi Rajah, and at Bood Koten, about 3 miles from Tunkaria.	It occurs in the plain about 2 feet under the surface of soil, in massive layers, cracked, and weighing from $\frac{1}{2}$ lb. to 30 or 40 lbs.	Ditto ditto.
Agate, Common. —A mineral whose basis is calcadony, blended with quartz and cornelian. The white or semi-transparent is named Dholu, and cloudy and streaked Jamma. It is generally greyish-white, of different shades. It is pretty hard, brittle, and massive, and receives a high polish.	Near the village of Mahidpore, 3 miles from Tunkaria, in the territory of the Rajah of Moorvi.	It occurs in the plain, near the surface of soil, in massive blocks, the most perfect not exceeding 5 lbs.; the inferior quality and cracked, as high as 60 lbs. in weight.	Ditto ditto.
Agate, Kapperwaage. —This is a beautiful species of agate, some having the impression of mineralized plants delicately preserved with a clear semi-transparent basis, and is named Barriah; others of variegated shades of colour, with landscape or other delineations, named Aggeah, Ruttea, &c. It occurs in pebbles, or rolled masses, is hard, and receives a high degree of polish.	At Kapperwaage, in the Kairazilla, and in the bed of the river Magain, between the village of Amliala, and Namedwah, about 15 miles from Kapperwaage.	It occurs on the banks and in the beds of rivers, in rolled balls of spheroidal reniform, and amygdaloidal figures, from $\frac{1}{2}$ lb. to 10 lbs. in weight.	The Bheels search for the stones and sell them to a Borah at Mandwah, from whom the lapidaries purchase at from 3 to 12 rupees per maund, according to quality. It is carted or brought on donkeys to Cambay. Ten maunds of the stone is valued at 100 rupees, on which a duty of 4½ rupees is charged here.
Agate, Veined. —Named by the lapidary Durador, of different shades of white with dark streaks, or a dark ground with white thready streaks, assuming different forms. It occurs imbedded in clayey soil, is hard, and takes a very high polish.	At Khanpore and adjacent villages, named Darceppla and Ninama, in the Ahmedabad zilla, near Dandookee.	Found imbedded under the upper strata of soil, in pebbles of various shapes, not exceeding $\frac{1}{2}$ lb. in weight.	A fee of 2 rupees per cart-load is paid to the Government on the entries, and the stones are carted to Cambay. The cart-load is 40 maunds, which pays a town duty of 2 rupees here.
Chocolate-stone. —Assuming its colour, as the name implies; is named Katiah, of a brownish-earthly basis, not very hard, of a dull fracture, and does not take a high polish.	At Khanpore, near Dandookee, and at Temkaria, in the territory of the Moorvi Rajah.	It occurs on the surface, and imbedded a few feet under the soil, in masses from 1 to 8 lbs. in weight.	Brought from Tunkaria on bullocks at rate of 4½ rupees per load, and in carts from Khanpore, 15 rupees hire for cart-load, besides the Government fee of 2 rupees per cart-load.

Description of Stone.	Where Procured.	Quarried or how Procured; Size and Formation.	REMARKS.
Crystal. —Named Phuttnesat: clear transparent stone, resembling glass in appearance, and receives a high polish.	At Tunkaria, in the territory of the Rajah of Moorvi.	Occurs in masses under the surface of soil, from 1 to 20 lbs. in weight.	Pays the same duty as the other stones in the Rajah of Moorvi's territory.
Variegated Stone. —Named by the lapidary Mimarian: of a liver-brown earthy basis, with yellowish impressions of shells and annelida (?), having a pretty marble appearance, but does not receive a good polish.	At Dhokeewarra, in the Runn, about 60 miles north of Deesa.	Found in large masses on the hill, and dug up in large blocks at its base.	Carted to Cambay.
Lapis Lazuli , or the Azure Stone. —Named here Rajahwarrad: of a deep blue colour and soft earthy basis, with sprinkling of silver or gold in spots. May be known by its beautiful indigo blue colour. It is soft, and does not receive a high polish.	Imported here from Bombay. Brought from Persia and Bucharla.	Said to be found in rounded balls in the bed of rivers.	.
Jet Stone (Obsidian). —Named here Kulla: further resembling glass in fracture, not very heavy, and takes a high polish.	Imported here from Bombay.	It occurs on the hills at Bassorah and at Aden, in large blocks.	.
Blue Stone (Perosa). —Assuming various shades of blue. This is a composition resembling glass, soft, and takes a good polish. It resembles the true perosa (turquoise) when highly polished.	Imported here from Bombay. Is said to be prepared in China.	Brought from China in flat pieces, not exceeding $\frac{1}{2}$ lb. in weight.	.
Cornelian is named Gharr in the original state. They are cloudy, of various shades of brown, and others of different tints of yellow in the natural state. After exposure to the sun and baking, these assume other tints, as follows: light brown becomes white, dholu, pale yellow, rose colour, gulabi, deep yellow. Red or lall, a mixture of cloudy brown and yellow, becomes white and red, named Ubluckee: another shade of yellow turns pinkish-purple, named Nafurmani; and brown becomes a darker shade, named Emni. The above are quarried in large quantities, and undergo the process of baking; they receive a high polish, and are wrought into flat and round necklaces, bracelets, armlets, stones for seals, chessmen, marbles, studs, rings, &c. The other stones found in the neighbourhood or on the hills, and subjected to the heating process, are as follows:—	At the base of the hills of Bowa Abbas and Rajpeeplee, in the territory of the Naudode Rajah, who is tributary to his Highness the Gaikwar. The Naudode Rajah farms the quarries to native contractors, who pay annually from 2,000 to 2,500 rupees to the Rajah for the sole privilege of collecting the stones.	Quarried or dug up from near the base of the hill in various shapes: the pebbles are imbedded in a soft yellow soil, or in bluish-grey clay, of size varying from a small pebble to 1 lb. in weight, and are chiefly of uneven form and surface.	Between the Bowa Gore and Bowa Abbas hills on the plain are small mounds, from whence the stones are quarried by the Bheels of the district; they excavate to some depth, forming galleries in a horizontal direction about five feet in height and four broad; they are obliged to use a lamp, and work in pairs, one employed with the pickaxe in the quarry, the other at the entrance, who examines the stones by chipping off a piece, retaining the good and rejecting the bad on the spot: when a larger number of men are employed, the galleries are extended in different directions, with air passages. The two men, in 8 or 10 hours, obtain from 10 to 40 lbs., which is brought in the village of Ruttonpore, by the contractor & his people. A quantity is thus procured in the fields; after which many generally dig a trench round a field two feet in depth and three in breadth. In this fires of goats' and cow dung are set up, and the stones in earthen pots, in single rows, are placed in the trench; the fire is kept up from sunset to sunrise, when the chatties are removed and the stones piled away. The contractor attends to the heating process; the stones are once a-year carted to Nemodra, and conveyed in canoes down the river to Brouch, whence they are brought in boats to Cambay. Each bag of 25 maunds pays a duty of $\frac{1}{4}$ rupees to the British Government at Brouch, in addition to the import and export duty at Cambay. The stones are sold to heads of the lapidary manufactories. The town import duty is $\frac{1}{4}$ rupees.
Mora , or Bowa Goree . —A species of onyx, or dark-coloured cornelian with white veins, or a greyish-white ground with dark veins, assuming various figures, receives a high degree of polish, and is much prized in the Djeddee market. The true onyx, or sala main, is brought here by Mahomedan mendicants, in ready-made strings of beads.	On the Bowa Gore and Abbas hills, or at their base, or in the bed of the river formed by the monsoon streams between the hills.	Mora is found on or at the base of the hills, in pebbles not exceeding 1 lb. in weight.	
Cat's-eye , Chesumdar . —The principal colour is grey, presenting many varieties usually translucent. It is hard, bears the impression of a cat's or bird's eye more or less perfect, is much esteemed, and receives a high degree of polish.	Found on the Bowa Gore and B. Abbashills, or at their base, or in the bed of the river formed by the rains between the hills, which is dry in the month of October.	It occurs in blunt-edged or rolled pieces; the pebbles are of various shapes and small size, not exceeding 2 oz. in weight.	The pebbles are searched for by the Bheels of the district, and disposed of to the contractor at Ruttonpore, who sells them to the head of the different lapidary manufactories at Cambay.
Roree , or Lusunia . —A yellow pebble, semi-transparent, found scantily with the cat's-eye; receives a very fine polish, and is much esteemed: usually cut for ring-stones.	Ditto ditto.	Ditto ditto.	Ditto ditto.

DESCRIPTION OF ARTICLES.	Amount, Rupees.	
	From	To
A cannon, with carriage, and timber carriage and appurtenance complete	each	200 250
A cannon, with carriage, of moss or other agates, or bloodstone	"	70 100
A set of chess-men, of any two varieties of stone	per set	75 100
A set of variegated slabs, twenty pieces to form a small square table	"	35 45
An oval slab and pedestal, forming a miniature table	each	25 35
A large cup and saucer, of agate or bloodstone	"	40 50
A cup and saucer of small size, ditto	"	10 20
Slabs large, six pieces of different, or one description of stone, to form into a box	each set	35 50
Slabs, a pair, to form the top and bottom of a box, large	per pair	8 15
Slabs, a pair, to form the top and bottom, of smaller size, for snuff or other box	"	3 6
A pen-rack, with ink-stand and pen-holder	per set	20 25
A watch-stand	each	8 10
A letter or card-rack	"	10 12
A flower-stand or vase	"	20 30
Knife-handles, of good description	per dozen	12 18
Butter-knife-handles, of agate or bloodstone	per pair	3 4
Rulers, of agates, bloodstone, &c.	each	3 5
Paper-cutters, ditto, of sizes	"	1 3
Paper-weights, of different sizes and patterns	"	3 6
Rough specimens of stones, one side polished	per dozen	3 4
Stones for brooches, of different patterns	each	1 4
Bracelets, of variety of patterns	per pair	4 8
Necklaces, of ditto, ditto	each set	4 10
Crochet needles, pen-holders, and seals	per pair	1 3
Braces, studs, and coat-button studs	per dozen	3 4
Shirt studs	"	1 1
Marbles, of different sizes	"	1 2
Cornelians, stamps for engraving initials or crests	per pair	3 6
Ear-drops, with tops to match	"	1 3

TABLE prepared from the CAMBAY CUSTOM-HOUSE RETURNS, exhibiting the Value of the Traffic in Wrought Cambay Stones, and Export Duty thereon, for two official years, 1848-49 and 1849-50, commencing in May and ending in April.

	Small Packages.	Large Package.	Bamboo Basket.	Large Box.	Bags of Cornelian sent in large Bales of Cloth.		Total Value of Cornelian sent each Year.			Customs' Duty on the part of the British Government.		
	Bundry.	Kern.	Kindin.	Patle.	Bales.	Bags.	Rs.	A.	P.	Rs.	A.	P.
1848-49	10	3	13	23	49	312	108,422	0	0	1,350	4	0
1849-50	18	1	11	6	98	536	94,902	0	0	1,186	4	6

In the above table, the export duty levied by the Nawab is not given: the amount exactly trebles that of the British Government, which is calculated at one rupee and four annas per cent. on valuation; this is independent of private fees levied by the Nawab's native officials.

The agate and cornelian trade forms a subject of much interest, but its "modus operandi" has hitherto excited little attention: no desire has been manifested to acquire a knowledge of its varied and complex process, from first procuring the stones in the rough state, to the ultimate perfection of finish arrived at by the art of the lapidary at Cambay. This I have now attempted to describe in detail; and from the foregoing statement of the different agates and cornelians, it will be evident that though they still bear the name of Cambay stones, and this place has held the reputation for a considerable time of being famed for its stone quarries, they are actually brought here in the rough state from different parts of Guzerat, and are only wrought in the lapidary workshops established here for upwards of a century; and although the value of the traffic has been considerably reduced of late years it still forms, next to cloth, the principal article of commerce, yielding a good profit to the traders, forming a valuable source of revenue to the State, and giving employment to nearly two thousand people engaged in the manipulation of the articles in the busy workshops, amounting in all to about seventy-five large and twenty-five small shops.

The traders consist of about fourteen Bannyans and Borah merchants, who purchase the wrought articles from the heads of the lapidary workmen, and send them to Bombay, Djedda, and other ports.

The workmen or artificers form a distinct corporate body called the ukkeekia jamut, or punchayat, and are designated as follows:—100 ukkeekias, master artificers, or heads of establishment; 300 gaseas or workers on the lapidary wheels; 200 dholias or polishers on the rough and hard polishing-stone; 50 puttymars or polishers on the wooden frame; 100 badars or borers, those employed on the drilling process—750 in number. These form the punchayat, or regularly constituted trades' craft. Besides which, upwards of a thousand people are employed in the different shops as day-labourers in the chipping process, cutting slabs, &c.; they consist of men and boys of both Hindoo and Mahomedan faith.

The punchayat holds the power of adding to their community—the party so privileged, paying a fee of a hundred rupees for his admission into the craft, which is spent in dinners. Each department of labour remains distinct; the artizan in one branch will not interfere with or undertake the work of another branch, and each enjoys distinct privileges appertaining to his particular department needless to notice here.

Coal, from Hooz Mine, Arracan, and from Mergui.
Coal, and accompanying rocks, from Singrowlee.—Worked by the Messrs. Hamilton and Co. of Mirzapore.
Coal, from Kurhurbalee.
Coal and coke, from Assam.
Coal, from Indurgerba and Badum, and from Cossya Hill.
Coal, or lignite, from the Trombow River, in Cutch.
Coal, from Nepal and Burdwan coal mines.
Petroleum, from Silhet, Assam, Arrakan, Akyab, and Cheduba.

Doopashaponie resin in earth; heerakussee, variety of amber; from Murr.

Mineral resin (amber), from Cutch. This is dug up with the coal at the Trombow River.

Sandstone, from Gwalior.

Sulphur and saltpetre, from Nepal.

Sulphate of iron.

Carbonate of Soda, from Cuddapah and Bellary.

Carbonate of soda, nearly pure, prepared from Dhoby's (Washerman's) earth.—Professor Key.

Salt, from Tanjore and Vizagapatam.

Saltpetre of Maganore and Errode. Potash, nitrate of, or saltpetre, from Coimbatore and Bengal.

Pearlash, from Madras; pearlash prepared from nitre and charcoal, two sorts, and from Lahore.

Magnesia, carbonate of, from Bellary, Salem, and Oopalon.

Salt, from Nepal.

Salt from Nowpadah pans—from Vizagapatam.

Salt produced by periodical inundation of sea over a sandy plain, collected into heaps after evaporation—from Coombaconum.

Bootan rock salt.

Alum, and earth from which it is extracted, from Cutch. This earth is chiefly found near the town of Murr. About one-sixth of the alum manufactured is used for home consumption, and the remainder is exported to Marwar, Bombay, &c.

Mode of manufacturing alum in Cutch:—"The shale from which alum is obtained forms beds in the variegated marl, and in a kind of blue clay. Long galleries are cut for the purpose of extracting it; but so plentiful is the supply, that no means are taken to support them, and they generally fall in during the rainy season. The manner in which the alum is prepared is very simple: the earth is exposed in heaps to the sun and air for about five months, during which it burns spontaneously. It is next laid out in little beds, similar to those of a field prepared for irrigation, and it is watered by a small stream for ten or fifteen days, by which time the aluminous matter accumulates into semi-crystalline plates. This substance is boiled in water for about seven hours, after which, a third or one-half, by weight, of potash is added, and it is again boiled for a few hours, according to the strength of the ley. It is then poured into a large open vessel, where, after settling for some time, it is washed, and the liquid drawn off, leaving an impure crystalline sediment. This is once more boiled, and when it arrives at a proper state, which is learned by practice, it is poured into large earthen vessels with small mouths, and sunk into the ground to prevent their breaking. After a time the vessels are dug out, broken to pieces, and a lump of pure alum extracted. Six or eight measures, by weight, of alum are produced from ten measures of the substance from the irrigating beds, and four or five measures of potash."—*Capt. Grant's Geology of Cutch*, p. 295.

"One pound of alum is manufactured at Murr for about $1\frac{1}{2}$ of a farthing, and transported to Bombay at an expense of about $\frac{1}{3}$ of a farthing, so that whatever alum fetches in the Bombay market beyond the above, amounting to rather more than two farthings a pound, remains as a profit to the merchant and the state.

"Cutch alum sells for a considerably higher price than China alum.

"Alum and iron are only manufactured in the cold season, so that illustrations of the process of manufacture could not be procured."

Steatite black and white, from Arracan.

Marble slabs from Bellary; bricks made of white clay; marble mortar, rough—from the Ceded Districts.

Honestone from Toongabudra River, from Kun Lithographic stones, from Kurnool, Juggispettai Datchapilly.

Rough and polished graphite; red and yellow potstone and mica, from Bengal.

Koorun or Oorundum, from Salem and Malabar.

Talc, from Nepal.

Yellow ochre, from Malacca.

Limestone, from Hooz Mines, Arrakan.

Kunkur, from Hoogly.

Limestone, from Mirzapore and Silhet.

Kunkur and limestone, from Bengal.

Building stones from Cutch. These are principally calcareous.

Polished stones from Cutch. These are specimens of the different limestone formations in Cutch.

Stones of different kinds, potter's clays and earthenware from Nepal.

Marbles of Gooty, from Bellary.

Serpentine.

A plate of stone-like jasper, three of agate, two of marble; two cups of jasper agate, two of brecciated two pestles and mortars, and two of jasper agate squares of the above, three stones, and three rough—from Jessalmere.

Primitive marble; serpentine; primitive lime red and yellow jasper; puddingstone; jasper; jasper; plastic, yellow, and slate-coloured clays; kaolin earth; soapstone for stills; Kakming garu serpentine, used for making pots and pans; six bottles of Mehanet oil—from Assam.—Major Hann Pipe-clay, yellow ochre, and clay, from Singapore Clay, from alluvial soil, from River Hooghly.

Limestone; tremenheerite; alabaster; petro agate, cornelian, and calcedony; Ava gem sand—Tennasserim Province.

Fossil trees, from Nerbudda.

Fossil woods, from Assam.

Petrifications and petrified woods, from Bengal Mirzapore.

Mineral Substances from Madras.

- 1 White kaolin, from Ahloor, near Salem.
- 2 Magnesian kaolin, from hills near Vellore.
- 3 Kaolin, or porcelain earth, from Bangalore.
- 4 Magnesian kaolin, from Chingleput.
- 5 Kaolin, or porcelain earth, from Cuddapah.
- 6 Talcose kaolin, from Bimlipatam.
- 7 Kaolin, or porcelain earth, from Chittoor.
- 8 Fine white kaolin, from Travancore.
- 9 Kaolin, or porcelain earth, from Dindigul Hill.
- 10 Felspathic kaolin, from Trivatoor and Chingleput.
- 11—13 White kaolin, from Vellore or Arnee, Madras and Chittoor.
- 14 Kaolin, from Salem.
- 15, 16 White kaolin, from Madura and Chicacole.
- 17 Kaolin, from Salem.
- 18 Magnesian kaolin, from Bellary.
- 19 Cream-coloured kaolin, from Atoor, near Salem.
- 20 Felspathic kaolin, from Tripthy Hills.
- 21 Cream-coloured kaolin, from Neilgherries.
- 22 White kaolin, composed of decayed felspathic soapstone, from Salem.
- 23, 24 Dirty yellowish and silicious kaolin, Chingleput.

(Specimens of the rock of the hill above.)

- 25 Silicious kaolin, from Little Mount, Madras.
- 26 Pink kaolin, from Neilgherries.
- 27 Fawn-coloured kaolin, from Salem.
- 28 Red kaolin, from Salem.
- 29 Puce-coloured kaolin, from Bangalore.
- 30 Greenish yellow kaolin, from Bangalore.
- 31—35 Shale, a true fire clay, from Streepermu Trepasoor, Chingleput, Mettopolium, and Cuddapah.
- 36 Rock crystal, from Tanjore.
- 37, 38 Rose and milk quartz, from Arcot.
- 39 Smoky quartz, from Nellore.

- 40, 41 Common quartz and hyalite, from Chingleput.
 42 Amethystine quartz, from Vizagapatam.
 43 Common thick fibrous amethyst, from Chingleput.
 44 Flint, from Vizianagram.
 45 Magnesite, a pure carbonate of magnesia, from Nungungode.
 46 Silicious magnesite, from Trichinopoly.
 47 Soapstone, from Salem.
 48 White and pink soapstone, from Ganjam.
 49 Grey soapstone, or steatite, from Chittore.
 50 Potstone, or lapis ollaris, with a pot cut of potstone, from Cuddapah.
 51 Sulphate of baryta, or heavy spar, from Kurnool.
 52 Corundum, from Gopaul Chettypollum, near rest of Salem.
 53 Adularia, from near Chingleput.
 54 Pink and white felspar, from near Arcot.
 55 Pegmatite, from Arcot.
 56, 57 Zeolite and Indianite, from near Chingleput.
 58 Adularia, from near Arcot.
 59 White felspar, from Bamlipatam.
 60 Felspar, from Chingleput and Salem.
 61 Glossy felspar, near Arcot.
 62 Varieties of felspar, from Naggery Hills, Madras.
 63 Cleavelandite, from Coimbatore.
 64 Pink felspar, from Chingleput.
 65 Grey felspar, from Arcot.
 66 Granular pink felspar, from Vizianagram.
 67 Common granular felspar, from Chingleput.
 68 Fluates of lime, from Madura.
 69 Satin spar, from Ceded Districts.
 70 Cube spar, from near Salem.
 71 Calcareous spar, from Ceded Districts.
 72 Fibrous gypsum, very pure, from Bangalore.
 73 Fibrous gypsum and varieties of sulphate of lime, from Kurnool.
 74 Selenite, or glossy gypsum, from Trichinopoly.
 75 Talc and mica, from Salem and Vizagapatam.
 76 Hornstone, or chert, from Cuddapah.
 77 Black chert, from Tarputty.
 78 White quartz (occurs in blocks of enormous size), from Chingleput.
 79 Iron flint and grey nummulite, from Chingleput.
 80 Flinty slate, from Kistnah, below Rachore.
 81 Pipe-clay, white, from Neilgherry.
 82 Grey ball clay, from Poonamallee.
 83, 84 White ball clay, from Chicacole and Huttanoor.
 85 Blue ball clay, from Cuddalore.
 86 Grey ball clay, from Poonamallee.
 87 Yellow ball clay, from Streepermatoor and Red Hills.
 88 Grey salt glaze clay, from Salem.
 89 Light spongy clay, from Chingleput.
 90 Yellow magnesian clay, from Red Hills, Madras.
 91 Tough yellow clay, from Chingleput.
 92 Yellow magnesian clay, from Poonamallee.
 93, 94 Grey magnesian and tough grey clays, from Streepermatoor.
 95, 96 Grey and yellow clays, from Salem.
 97 Puce-coloured clay, from Cuddapah.
 98 Lavender-coloured clay, from Bellary.
 99 Red magnesian clay, from Red Hills, Madras.
 100, 101 Tough brown and dark-brown clays, from Madras.
 102 Black bituminous clay, from Rajahs Choultry, Madras.
 103 Black clay, from Salem.
 104 Black tank bed clay, from Chingleput.
 105 Black clay (the matrix of the sulphate of lime), from Monegar Choultry, Madras.
 106 Regur, or black cotton soil (yields a fine tough clay by washing), from Bellary.
 107 Silt, from Chingleput.
 108 Grey stony silt, from Telavaram Hill.
 109 Green stony silt, from Streepermatoor.
 110 Grey silt, from Cuddapah.
 111 Yellow and red ochrey clay, from Tilavaram.
 112 Bastard fire-clay, or shale (contains gyrogonites or fossil seeds), from Tilavaram, Streepermatoor.
 113, 114 Yellow and orange marl, from Chingleput.
 115 Light red marl, from Salem.
 116 Dark red marl, from Chingleput.
 117 Purple marl, from the Monegar Choultry, Madras.
 118, 119 Brown and grey marl, from Chingleput.
 120 Dark-grey magnesian marl, from Red Hills, Madras.
 121 Greenish-white marl, from Chingleput and Wallabad.
 122, 123 Greenish-yellow earth and friable lithomarge, from Bangalore.
 124 Indurated lithomarge, from Cuddalore.
 125 Rock crystal, from Toomboodra.
 126 Smoky quartz, from Tanjore.
 127 Agate and calcedony, from Rajahmundry.
 128 White quartz, from Tilavaram Hills, Madras.
 129 White stone, or albite, from Pellaury River.
 130 Hyalite, from Nellore.
 131 White sand, from Madras.
 132 Variety of ice spar, from Salem.
 133, 134 Glassy felspar and pegmatite, from Arcot.
 135 Green stone, from Tilavaram Hills.
 136 Venetian talc, from Salem.
 137 Common salt, from Masulipatam.
 138 Refined salt, from Nellore.
 139 Magnesia, or magnesite, from Salem and Trichinopoly.
 140 Epsom salts (prepared from the Salem magnesite, by Dr. Lima), from Port Novo.
 141 Saltpetre, from Errode and Salem.
 142 Purified saltpetre, from Gunpowder Manufactory, Madras.
 143 Carbonate of potash, from Madras.
 144 Purified carbonate of soda prepared from Dhoby's (Washerman's) earth from Madras.
 145 Alum, from Vizianagram.
 146 Baryta, from Cuddapah.
 147 Bichromate of potash (prepared from chromate of iron), from Port Novo.
 148 Prepared lime (from the shells on the beach), from Madras.
 149, 150 Greyish-white and yellowish-white marbles (granular), from Cuddapah.
 151 Yellow marble, from Gooty Hills.
 152—155 Green, pink, grey, and lavender-coloured marbles, from Cuddapah.
 156—158 Purplish-coloured, wax-coloured, and bluish-grey marbles, from Ceded Districts.
 159 Grey and yellow marble, from Ryelcherro, near Cuddapah.
 160 Black marble, from Tarputty.
 161 Grey lithographic marble, from Datchapilly.
 162 Grey lithographic marble, from Cuddapah.
 163, 164 Yellowish-grey lithographic marble, from Kurnool and Juggiahpett.
 165, 166 Dolomite, or magnesian limestone, from Travancore and Rajahmundry.
 167 Calcareous limestone (from the vicinity of the fossil shell lime), from Trichinopoly.
 168 Porphyritic dolomite (occurs under the yellowish limestone), from Cuddapah.
 169 White and grey nodular limestone, from Chingleput.
 170 Kunkur, a variety of nodular limestone, from Cuddapah.
 171 Septaria, or hydraulic cement stones, from Chingleput.
 172 Shells, from the beach, Madras.
 173 White granite, without mica, from Arcot.
 174 Compact white granite or pegmatite; the same, converted artificially into kaolin by steeping in lime-water; from Chingleput.
 175—177 White granite, green and pink granite, and labradorite, or variegated felspar, from Chingleput.
 178 Porphyritic pink granite, containing small crystals of tourmaline, from Seringapatam.

- 179 Flesh-coloured granite, from Chingleput.
- 180 Syenite, from Arcot.
- 181, 182 Pink granite and syenite, from Bangalore.
- 183 Grey granite, from Cuddapah.
- 184 Bright red granite, from Bangalore.
- 185 Pinkish granite, from Bellary.
- 186 Mica schist, from Cuddapah.
- 187 Mica schist (occurs with plumbago), from Bimlipatam.
- 188 Porphyritic granite, from Chingleput.
- 189 Porphyry (composed of basalt and quartz), from Bangalore.
- 190 Porphyry (composed of silicious limestone and large crystals of felspar), from Cuddapah.
- 191 Porphyry (composed of silicious paste, embedding fragments of jasper, quartz, and felspar), from Allumpilly.
- 192 Porphyritic conglomerate, from Cuddapah.
- 193 Silicious eurite, a variety of greenstone, from Bangalore.
- 194, 195 Greenstone, from Tilaveram Hills and Nellore.
- 196 Hornblende, from Hoonsoor.
- 197 Hornblende schist, from Bangalore.
- 198 Basaltic hornblende, from Arcot.
- 199 Basalt, from Dunnel.
- 200 Black slaty limestone, from Cuddapah.
- 201 Serpentine and serpentine porphyry, from Bangalore.
- 202 Spongy clay ironstone, from Red Hills.
- 203 Slate for roofing or building, from Kalidgee.
- 204, 205, 206 Building slate; slate, containing large grains of iron pyrites; and roofing slate, from Cuddapah.
- 207 Polishing slate, from the Ceded Districts.
- 208 Slaty marble, from the Tumbbovra.
- 209 Whetstone, from Kistnah River.
- 210 Grey whetstone, from Nellore.
- 211 Yellow whetstone, marked, No. 67, from Cuddapah.
- 212 Grey flinty slate, from Tilaveram Hills.
- 213 Grey soft aluminous whetstone, from Bunkrapett.
- 214 Aluminous slate, from Cuddapah.
- 215 Sandstone, from South Arcot.
- 216, 217 Sandstone or freestone, from Nellore and Kencattagerry.
- 218 Sandstone, from Nellore.
- 219 Aluminous shale, yields sulphate of alumina, from Chingleput.
- 220 Sandstone, embedding gyronites, from Streepmatoor.
- 221 Compact aluminous shale, from Nuttum Hill, Chingleput.
- 222 Claystone, from a bed of marl, from Chingleput.
- 223 Diamond breccia, from Allumpilly.
- 224 Hyacinth, from Nuttum Hill, Chingleput.
- 225, 226 White and blue sapphires, from Kangagum, Coimbatore.
- 227 Lepidolite, from Cuddapah.
- 228 Clevelandite, or precious felspar, from Chingleput.
- 229 Clevelandite, from Vizagapatam.
- 230, 231 Emery and corundum, from Gopaulchetty Pollium.
- 232—234 Red, blue, and green corundum, from Shalash-raiyin and Salem.
- 235 Beryl, or aquamarine, from Kangayum, Coimbatore.
- 236 Sphorl, from Gopaulchetty Pollium.
- 237 Tourmaline, from Salem.
- 238 Precious garnet, from Condapilly.
- 239 Common garnet, from Bangalore.
- 240 Amethyst, from Hyderabad.
- 241 Agate, from Rajahmundry.
- 242 Cat's-eye, from Kistnah River, Rachore.
- 243, 244 Jasper porphyry and jasper, from the Ceded Districts.
- 245 Rock crystal, from Naggery Hills, Madras.
- 246 Common opal, from Kistnah.
- 247 Calcedony, from Rajahmundry.
- 248 Cornelian, from Godavary.
- 249 Onyx, from Kistnah.
- 250 Bloodstone, from Salem.
- 251 Wood opal, from Madura.
- 252 Petrosilex, or petrified wood, from South Arcot.
- 253 Sandstone coloured by gold, from the Western Ghaut.
- 254—256 Menacranite, or oxide of titanium; oxide of titanium, with micaceous ore; and variegated copper ore, very rich in metal, from the Neilgherry Hills.
- 257, 258 Grey and green copper ore, rich in the metal; and liver-coloured copper, from Guntoor.
- 259 Dark red copper, from Tadah Talooch, Guntoor.
- 260 Compact copper-glance and grey copper ore, from Copper Mountain, Bellary.
- 261 Malachite and purple copper ore, poor in metal, from Nellore.
- 262 Black, green, and grey copper, from Naggappi Talook, Nellore.
- 263 Fibrous grey manganese ore and dendrites, from Mahratta country.
- 264 Black clay, containing black oxide of manganese, from Neilgherry.
- 265 Umber, or brown oxide of manganese and iron, from Neilgherry.
- 266 Native antimony, and grey antimony ore, from Vizianagram.
- 267, 268 Radiated grey antimony ore, or sulphuret of antimony; and galena, or lead-glance, from Kurnool.
- 269 Galena, or sulphuret of lead; occurs in beds of limestone and sulphate of baryta, from Cuddapah.
- 270 Chromate of iron, from South Arcot.
- 271 Chromate of iron, from Salem.
- 272 Cube-ore, or arseniate of iron, from Guntoor.
- 273 Terrestrial native iron, highly magnetic, from Salem.
- 274, 275 Common iron pyrites; and hepatic iron ore, or liver pyrites, from Cuddapah.
- 276 Common magnetic ironstone, from Chingleput.
- 277 Iron sand, or arenaceous magnetic ironstone, from Calicut.
- 278 Iron sand, from Madras.
- 279 Earthy magnetic ironstone, from Chingleput.
- 280, 281 Specular iron ore, or iron-glance; and soft red iron ore, or red iron tooth, from Vizagapatam.
- 282 Ochry red ironstone, or red ochre, from Chingleput.
- 283 Common red ironstone, from Cuddapah.
- 284 Red hematite, from Vizianagram.
- 285 Red hematite, or fibrous red ironstone, from Chingleput.
- 286, 287 Compact brown ironstone; and brown hematite, or fibrous brown ironstone, from Red Hills, Madras.
- 288, 289 Compact black ironstone, from Chingleput and Salem.
- 290 Black hematite, from Tilaveram Hills.
- 291 Sparry ironstone, from Kurnool and Cuddapah.
- 292 Jaspery clay ironstone, from Soondoor.
- 293 Common clay ironstone, from Red Hills.
- 293a Laterite, from Madras.
- 294 Reniform, or kidney-shaped clay ironstone, from Red Hills, Madras.
- 295 Meadow ore, or conchoidal bog iron ore, from Tilaveram and Vizagapatam.
- 296 Vesicular iron ore, from Bangalore, Chingleput, Nellore, and Salem.
- 297 Vesicular iron ore, from North Arcot.
- 298, 299 Black band iron, from Soondoor, Salem, and Chingleput.
- 300 Iron ore, from Kurnool.
- 301 Purple oxide of iron, Cuddapah.
- 302 Octohedral crystals of peroxide of iron, from Salem.
- 303 Silvery white kaolin, from Bimlipatam.
- 304 Cream-coloured ochre, from Salem.
- 305 Warm stone-coloured ochre, from Chingleput.
- 306 Pure stone-coloured ochre, from Bangalore.
- 307 Flesh-stone coloured ochre, from Salem.

Dark shade of grey ochre, from Nuttum.
White ochre, or porcelain earth, from Bangalore.
Pale yellow ochre, from Nuttum Hill.
Deep yellow ochre, common in the bazaar at Ma-

313 Orange ochre, made from the yellow ochre by
nd bright yellow ochre, from Cuddapah.
Roman ochre, from Chingleput.
Lavender-coloured ochre, from Bangalore.
Brown-coloured ochre, from Chingleput.
Salmon-coloured ochre, from Salem.
Venetian red, from Madras.
Light red ochre, prepared from the yellow ochre,
uttum Hill.
Antwerp red, from Ganjam.
322 Indian red and purple ochre, from Chingleput.
324 Raw and dark umber, from Neilgherry.
326 Raw and burnt sienna, from Salem.
Cologne brown, from Neilgherry.
Peroxide of manganese, from Mahratta country.
Plumbago, or black lead, from Vizianagrum.
Iron sand, from Bimbilipatam.
Ultramarine, prepared from the lapis lasuli, from
y.
Alumine, coloured with madder; lake, prepared
as munjathe, or madder, from Chingleput.

CLASS II.

CHEMICAL AND PHARMACEUTICAL PROCESSES AND PRODUCTS.

ough the Arabs usually obtain credit for having
origin to chemistry, there is every probability that
adoos were acquainted with all the substances and
utions which are mentioned in the work of Geber,
liest Arabian chemist. The chemical substances
ated by him are all met with in India: some of
nes by which they are designated seem to be derived
in names of the same substances in India, as *sagi-*
om saji noon, signifying soda salt. The acids,
hich the Arabs prepared, the Hindoos have pro-
or making and still continue to make, by methods
le and with an apparatus as rude as in the most
times. The Arabs, moreover, have been proved
been acquainted with, as they have quoted from,
st ancient Hindoo works on medicine, in which
these chemical substances are mentioned. In the
day, however, the chemical products of the East
of a nature to bear favourable comparison with
f the West. Few, therefore, of such have been r
exhibition, and those only which are employed
icine; while others have been prepared in the
dia Company's dispensary in Calcutta, with the
course, of European superintendence: of these the
ns of sulphate of magnesia are interesting, as made
he magnesite or natural carbonate of magnesia of
insula. The hydrochlorate of ammonia is obtained
derable quantities from brick-kilns in which animal
is used as a fuel.

ng the medicinal substances obtained from the
le kingdom, several are already well known in
. The senna and the colocynth may be noticed as
quality and coming from new sources. What
only called India senna is the growth either of
or of the east coast of Africa, being first im-
nto Bombay and thence sent to this country. The
f *Ipomea cerulea* and the roots of *Convolvulus tur-*
are interesting as belonging to the same natural
as the jalap and scammony, and both used, as these
purgatives. The seeds of the *Ipomea cerulea* are,
y, the *hub-al-nil*, or *granum nil*, of the Arabs.

They are much esteemed in India, as being quick and yet
mild in their action. The gamboge of *Garcinia tinctoria*,
collected by Dr. Hugh Cleghorn, was first discovered many
years ago. Dr. Christison has lately shown that both
as a pigment and as a purgative it is very effective. It
may be obtained in considerable quantities in the forests
of Mysore and of Malabar.

The chiretta (*Agathotes chirayita*), of the family of
Gentiana, as a bitter tonic, is highly esteemed in all parts of
the Bengal Presidency, especially in the form of cold infu-
sion, as the kreat or creyat (*Justicia paniculata*) is in the
Peninsula of India. This became celebrated as the basis
of the *Droge amere*.

The oil of *Celastrus nutans* was exhibited by the late
Dr. Malcolmson in the treatment of beriberi. The *Hemi-*
dasmus is valued as an efficient substitute for sarsaparilla.
The *Calotropis gigantea*, and another species, *C. Hamil-*
tonii, may be employed as substitutes for ipecacuanha,
and are esteemed as alteratives in many skin diseases. Of
the animal substances, the blistering beetle (*Mylabris*
cichorei) employed in India is interesting as belonging to
the same genus as that described by Dioscorides.

Several other medicinal substances, or which may be
used as such, may be found among the spices and intoxi-
cating drugs, gums, resins, and oils, and among astrin-
gents. Most of the medicines known in India may be
be seen in—

The Collection of Mineral, Vegetable, and Animal Sub-
stances useful in Medicine and the Arts, collected in the
Bazaars of India, by J. FORBES ROYLE, M.D. See the
list at the end of Class IV.

Specimens of Aconitina, obtained by two processes from
the roots of *Aconitum ferox*, imported from the Himalayas,
are interesting, as difficulties have been experienced in
obtaining the alkali. They are exhibited by Mr. W.
Headland, of King's College.]

MEDICINAL SUBSTANCES.

From the Bengal Presidency.

Borax, refined; Acid, nitric; Acid, benzoic.
Arsenious acid; Realgar; Orpiment; Mineral carbo-
nate of soda; Sulphate of soda; Saltpetre; Sulphate of
copper; Carbonate of lead; Litharge; Minium; Cinna-
bar; Corrosive sublimate; Magnesite; Magnesia sulphas;
Hydrochlorate of ammonia.

Cannabis, Ind. ext. and tinct.; Nux vomica; Nux
vomica bark; Aconitum ferox; Aconitum tincture;
Castor-oil seeds; Cassia fistula; Senna leaves; Gamboge;
Ipomea cerulea; Cheretta; Cheretta extract and tincture;
Colocynth; Colocynth extract; Catechu; Assafoetida;
Calotropis gigantea; Calotropis powdered; Hemidesmus
indicus (Anantomool).

Mylabris (Meloë) trianthemæ (Native blisterfly)—From
E. I. Company's Dispensary, Calcutta.

Hill honey; Gall nuts; Oil of cubebs and croton;
Mustard oil; Grass oil; Gurjun oil; Medicinal opium;
Morphia; M. Hydrochloras et Acetas; Hyoscyami, fol.;
Hyoscyami extract, et tinctura; Stramonii sem.; Can-
nabis indica; Malkungnee, or Celastrus nutans; Myrica
sapida (bark of the); Anuntamool, or substitute for sarsa-
parilla; Momordica, sp.; Mishmee bitter or Mishmee tita,
Coptis teeta.—E. I. Company's Dispensary, Calcutta.

Jabrang, fruit of (*Xanthoxylum*), used in medicine;
Nux vomica—from Assam.

Gmelina arborea; Echites antidysenterica; Menispermum
cordifolium; Cyperus munga; Helicteres isora;
Sphæranthus, sp. moondee; Cheretta (*Agathotes che-*
rayita); Xanthoxyl, sp. Budrunga Tej-baul; Rheum
emodi; Fæstides Mauritiana?; Pongamia arborea; Swie-
tenia febrifuga; Althea, sp. Khutmee; Serratalue, sp.
Kasnee; Semecarpus anacardium; Gardenia dumeto-

rum; *Fumaria officinalis*; *Adiantum cordatum*; *Barringtonia acutangula*; *Cordia grandiflora*; *Momordica muricata*; *Embelia robusta*; *Linaria* sp. *Sterculia ramosa*; *Asparagus officinalis*; *Cassia fistula*; *Cucumis*, sp. *Kuchree*; *Plumbago zeylanica*; *Cesalpinia Bonducella*; *Tribulus lanuginosus*; *Argemone mexicana*; *Sarsaparilla*, substitute for; *Anuntamool*, from Patna; *Punica granatum*, rind of the fruit and bark of the root; *Tejraj*, *Bajraj*, *Kamraj*, *Doobraj*, and *Madhooraj*, from Bhagulpor; *Yew leaves*, marked *Podocarpus nana*; *Acorus calamus*, oil of *Cubebs*; *Choulmoogra odorata*, *Choulmoogra*; oil of *Croton*; *Camphor* from Borneo; *Cubebs*; *Cheena kuwab*; *Piper cubebs*, sent from Calcutta.

The following medicinal substances, used by the natives of Arrakan, are communicated with their local names and supposed properties. They are nearly all said to be of common occurrence throughout Bengal:—

Guaran, a carminative; *Shuedelai*, a powder for sores; *Danzagoothroo*, tonic alterative; *Gnapoongetay*, a carminative; *Mahaga*, drastic purgative; *Toungyen Khat*, astringent; *Thamaga*, carminative and tonic; *Thetyeng*, tonic, aperient; *Thabeyah*, carminative; *Kamaungkha*, refrigerant; *Kankyautner*, tonic aperient; *Let-topkyee*, astringent; *Nwashegyer*, sedative; *Kokkho*, tonic aperient; *Hting*, tonic; *Pwabet*, expectorant; *Thesenggyee*, warm purgative; *Thaweng poukphyoo*, expectorant; *Teermakhan*, tonic; *Tabwot*, a carminative; *Maor*, refrigerant; *Oayet*, refrigerant; *Touksha*, carminative; *Oabathaga*, aperient; *Toushouk*, tonic; *Kyoapmyet*, febrifuge; *Nanloogyng*, tonic aperient; *Tengthamanway*, laxative; *Pouknet*, tonic and carminative; *Tabatsay*, febrifuge; *Karawee*, tonic; *Thanly etgnai*, laxative; *Wow-oo*, febrifuge.

Java medicines, a series of, forwarded from Singapore.

From Bombay.

Oondee oil (Tanna). *Calophyllum inophyllum*, oil expressed from the nut, used as a stimulant externally and internally. Imported from Somali coast.

Kurunj oil (Tanna). *Pongamia glabra*, oil expressed from nut; used externally as a stimulant.

Senna leaves. Now grown in quantities in the Dekkan for the supply of Government stores; but no demand elsewhere. Four consignments have been sent to England. The first afforded a remittance about 2s. 2d. per rupee; of the second and third no accounts have yet been received; the fourth was sent last month (December 1850), its price as at present bought from the Ryots is 9 lbs. per rupee, being 2½d. per pound, or thereabouts.

From Madras.

Calabunda (*Aloe perfoliata*)—from Vizagapatam.

Gamboge—from Canara; ditto collected by Dr. Cleg-horn, from Madras.

Hemidesmus indicus; *Convolvulus turpethum*, root and powder; *Clitoria ternatea* seed and powder; *Cannabis indica* (flower's tops).—Professor Key, from Madras.

Specimens of *Mylabris cichorei*; *Pulvis mylabris cichorei*; *Tinctura cannabis sativæ*; *Hoya viridiflora* (*Asclepias vomitoria*); *Hymenodictyon utile*; *Soymida febrifuga*; *Dry bark* of the mullay or jungle margosa; *Dry bark* of the vapum or margosa tree; *Croton seeds*.

Napaula oil (*Croton tiglium*)—from Vizagapatam and Ganjam.

Justicia paniculata creyat. Specimens of salt—from Nellore.

CLASS III.

AGRICULTURAL PRODUCE.

[From the latitude and general climate of the different parts of India, it would naturally be inferred that the agricultural products must differ very considerably in the widely-separated provinces, and that they must certainly be entirely different from those of Europe, especially as the natives of the country are usually stated to live chiefly upon rice. This is a fallacy which has no doubt

originated from Europeans having obtained their principal information respecting India from its southern provinces. It would not, perhaps, be too much to say that probably the number of those who seldom taste rice far exceeds those who live upon it. For, in fact, the culture of wheat and barley, and of common millet, constitute the agriculture of many parts of the country quite as much as rice, sugar-cane, and other millets. This is in consequence of the seasons of cultivation being very different, one set of the cereal grains being sown in autumn, and grown during what constitutes the winter of Europe, while the other are sown in the midst of its summer. Thus wheat, barley, and common millet (*Panicum miliaceum*), are sown in October and reaped in March, while rice, maize, the great and Indian millets, are sown on the accession of the rainy season in June, and harvested in September or October.

Of wheat several varieties are grown: some of very fine quality, as the soft wheat, called *pysses*, and the hard wheat, called *jullalya*, both exhibited from the Nerbudda valley. Samples of these shown a few years ago in Mark Lane were considered to be finer than any wheats in the market. The soft wheat, which is most valued in this country, is thought less of in India, where the natives prefer the hard wheat, and give a higher price for it, as they consider it the most nutritious. Like the hard wheats of the south of Europe, this variety is used in India for making a kind of vermicelli, and was thought to contain a large proportion of glutinous matter; but this did not appear when the two kinds were analyzed by Professor E. Solly. Wheat is cultivated as far south as Burma, from whence a brownish-coloured variety has been sent, and at considerable elevations in the Himalayan Mountains, where some fine kinds of barley are also grown. Oats have been introduced by the English, and are produced of fine quality in the district, and to the northward, of Patna.

Indian corn or maize (*Zea mays*), a native of the New World, is cultivated in small quantities all over India, but not as a principal crop, being chiefly eaten in a green state and after the grains have been roasted. The great millet, or *Durra*, of the Arabs, *Joar*, and *Jawares* of India (*Sorghum vulgare*), occupies the place of Indian corn in Asia, where it is extensively cultivated, and forms a principal article of diet of the natives. The grains are large, and in chemical composition come near to Indian corn, but are apt to be attacked by the weevil. The other millets, species of *Panicum*, &c., small in size and hard, are also much used as articles of diet, and might, from their cheapness, perhaps, be profitably exported as food for the smaller animals in other countries.

But, besides the cereals, the natives of India cultivate a great variety of pulses, some of which are known in Europe as the pea, lentil, gram (*Cicer arietinum*). Others, such as varieties of *Cajanus* and of *Phaseolus*, also yield pulses which, like the cereals, are cultivated for food. These, being cooked with ghee or melted butter, give the natives the advantage of a mixed diet, instead of their subsisting, as usually stated, on a single substance like rice.

The different oil-seeds also occupy a share of the farmers' attention: of these linseed is well known in Europe, but in India is cultivated only on account of the seed-oil, and not for the flax of the plant. Also, mustard and rape, or rather other species of *Sinapis*, safflower seeds (*Carthamus tinctorius*), castor-oil plant, poppy, brown and white til or sesamum, and black til (*Griseotia oleifera*). For other oils, see OIL SERIES AND MEDICINES.

Among the roots cultivated, yams and sweet potatoes may be mentioned; also, turmeric and ginger, onions and garlic. Carrots often yield a large crop with the aid of irrigation, but the climate is not favourable for the field culture of turnips. Melons and cucumbers are also cultivated near wells, or in the beds of rivers, as also several of the fruits used as condiments, as coriander, cummin, &c.

(A.) Cereals.

Wheat:—Pisasee, sohalya, jullalya, kutya, varieties of *Triticum sativum*, from the Valley of the Nerbudda. Flour; three qualities, from native mills, Calcutta. Wheat, a dark-brown variety, from Burma. Oats (*Avena sativa*), from Patna. Banaful rice, and some of its straw, from Hooghly. Rice (*Oryza sativa*), and paddy, or unshelled rice, from Kénnaon.

Black and red paddy (*Oryza sativa*), from Bellary. Vargee rice and paddy, from Travancore. Vargee Nelloo, paddy, from Calicut. Wild rice:—Junglee dhan and Choenia dhan, from Nepal.

Table rice:—Indramayo, from Singapore. Pulut rice, a delicacy, prized for its nutritious qualities; and a dark variety, from Malacca.

Rice, and a variety of, Ketana, from Singapore. Rice, varieties of:—Banamutti, Hunsraj, Race Monea, Dalyanjan, Sookkannud, Ramkajul, Teluk, Sookhundes, Cnjhanna, Dhoce, Sathoe, Seorah, Herunj, Gujraj, Bettes, Anunder, Butteece, Hamoons, Kulma, Ramajnan, Mattes, Knomoolkie, Dhow, Soonkhur, Kumera, Doodhia, Boorah, Sookhurra, Moonree, Butika, Jhunoa, Motuchoor, Jubbedic, Jhunvan, Najar, Maheatus, Gowrera. There are two specimens of each, one shelled, the other unshelled; from Pilibeet in Bohilkund.

Rice, varieties of, from Arrakan. Rice from Ahmedabad. This is much prized for taste and scent, and large quantities of it are annually exported to Baroda, Cambay, and elsewhere.

White, black, and glutinous red rice, from Tennasserim.

Millets.

Great millet or durra of Arabs.—Joar of India. *Sorghum vulgare* and *saccharatum*, large and small; grown all over India.

Red, white, and brown Cholum or jawaree, from Bellary and other parts of India.

Indian corn, varieties of, from Nepal and Assam. Indian millet, Bajree (*Pennisetia spicata*), from India, Bellary, and Cutch.

Italian millet (*Setaria italica*), from Calcutta; Koon-goonie (*Panicum italicum*), from Bellary; Kungnee, from Nepal; Kadi kane (*Panicum miliaceum*), from Madura, Tinnivelly, and Palamcottah; Sanwuck, *Panicum frumentaceum*, from Ghazee-pore, Meerut, and Nepal; Koda, *Paspalum acrobiculatum*, from Nepal and Calcutta; Mundua, Raggee (*Eleusine coracana*), from Bellary, Mirzapore, Meerut, and Kénnaon; Choos (*Amaranthus furinaceus*), from Kénnaon; Razgeera (*Amaranthus frumentaceus*), from Bombay.

Burgooze grain (*Eleusine sp.*), from Hooghly. Guorura and Tipasa, small millets, produced by wild *Panicum*, from Mirzapore.

Buckwheat:—Oogul (*Fagopyrum vulgare?*), from Kénnaon and Nepal.

Pulses.

Urhur ke dhal; Dhal (*Cytisus cajan*), from Gwalior, Madura, and Tinnivelly; Dhol or thoravi, from Palamcottah; Tor var. (*Cytisus cajan*), from Bellary; Urhur (*Cajanus indicus*), from Calcutta; Gram, Chuna (*Cicer arietinum*), from Bellary; Dhol Chuna, grown all over India; Chuna (*Cicer arietinum*), from Calcutta.

Maah (*Phaseolus mungo*), from Bellary; Maah and Dhall maah, grown all over India; Maah (*Phaseolus mungo*), from Nepal.

Green gram:—Moong (*Phaseolus radiatus*), from Bellary and Madras.

Green gram:—Moong, grown all over India.

Black gram:—Moong, variety of (*Phaseolus radiatus*), from Vizagapatam and Ganjan.

Black gram, grown all over India.

Muskully (*Phaseolus radiatus*), Sona moog (*Phaseolus aureus*), Kista moog (*Phaseolus*), Kalle moog (*Phaseolus*), Mayance (*Phaseolus trilobus*), from Calcutta; Lall Goo-roonah (*Phaseolus trilobus*), from Kénnaon.

Horse gram:—Cooltie (*Dolichos uniflorus*), from Bellary; Gahut (*Dolichos uniflorus*), from Kénnaon and Nepal.

Red gram (*Dolichos catjang*), grown all over India.

Red and white gram (*Dolichos catjang*), from Vizagapatam and Nepal; Thatapyre (*Dolichos catjang*), from Madura, Tinnivelly, and Palamcottah; Banzampesaloe, Vizagapatam; Bhut (*Naja hispida*), from Kénnaon.

Peas:—Muttar (*Pisum sativum*), Goll muttur (*Pisum sativum viride*), from Calcutta and Nepal; Muscooree kullye (*Ercum Lens*), Soora kissurree (*Lathyrus sativus*), Baro Chuna (*Vicia sativa*), from Calcutta.

Katjang sarah, Katjang merah, Katjang tjoe, Katjang zungak, Katjang batoo, pulses, from Java.

French beans, sem, from Nepal.

Green peas, or pulse, Catjang cjo; Catjang tahoo, from Singapore, Sumbawn, and Sumatra.

Roots and Oil Seeds, &c.

Onions and onion seed, from Jessulmere.

Poppy seed, from Calcutta, Patna, &c.

Linseed, Teese (*Linum unguiculatum*); Kisto til (*Sesamum orientale*)—from Calcutta.

Black til Ram til (*Guizotia oleifera*)—from Bombay and Madras.

Castor oil seeds, Behrindu (*Ricinus communis*).

Mustard seeds, &c., Kala surson (*Sinapis dichotoma*); Shwet race surson (*S. glauca*); Jhoone race (*S. ramosa*)—from Calcutta.

Safflower and Soorj mookhee (*Helianthus annuus*).

Cucumber and melon seed, from Nepal and Bikaner.

Oil-cake, from Nepal.

Bamboo rice, from Nepal.

Bhatwa, Goorans, Shutyta, and Mishoyang, from Nepal.

Iroopoo pinakoo, from Calicut.

(B.) Dried Fruits and Seeds.

[The fruits which are dried and preserved in India are not numerous. The tamarind is the principal, and is much employed in making sherbets: unripe mangoes are preserved on account of their acidity. The ber, or byer, or jujube, is occasionally preserved, and baked plantains have been sent, but have not arrived in a good state. Figs, raisins, dried plums and apricots, are imported from Caubul, and dates from the Persian Gulf. The cocon-nut is conspicuous as a seed which is valued for its kernel. Almonds and pistachio nuts are imported from Caubul; walnuts and hazel nuts from Cashmere and the Himalayas. The seed of Terminalia catappa is called badam or almond, and used as a substitute for it, as are many other oily seeds, by the natives of India. The dorian fruit (*Durio sibethinus*) may be considered rather as a curiosity: it is highly esteemed as a fruit in the Eastern Islands, notwithstanding its disagreeable odour. The preserved bel fruit (*Egle marmelos*) is valued, as a medicine, for its mild subastringent properties. What is called *Muoka* fruit is only the flowers dried as they fall off. They abound in saccharine matter, and are eaten by the natives; and are also subjected to fermentation, when they yield a spirit which forms the common arrack of a great part of the country. Its flavour is compared by some to that of whiskey. The seeds yield a valuable oil which becomes solid in this climate. See OIL SERIES.]

Mangifera Indica, amehow; unripe mangos.
Tamarinds (*Tamarindus indica*), from Calcutta and Java.

Dried hyer (*Zizyphus jujuba*), from Bengal.
Muhooa fruit (*Bassia latifolia*), from Moorsshedabad.
Cocoa-nut (*Coccos nucifera*).

Kanari nut (*Canarium commune*), from Java.

Desay-a knot (*Aleurites triloba*). The specimens forwarded are all that could be procured at the time they were ordered; they were obtained from Belgaum, where, in this Presidency, they chiefly grow. The Central Committee of Calcutta requested that this article might be sent from the Bombay Presidency. These are called Belgaum, or country walnuts. The nuts are so called from their resemblance to walnuts: the kernels taste like them, and yield a large portion of pure palatable oil.—*Bombay Report*.

(C.) *Substances used in the preparation of Drinks.*

[Tea is so peculiarly a Chinese product as to be almost a synonym of the country. From the difficulties at first experienced in producing good teas in Penang, Java, and Rio Janeiro, it was inferred that the soil and climate required for the tea plant were of so peculiar a nature as to render it difficult, if not impossible, to produce good tea anywhere out of China. This was no doubt owing in part to its having been supposed that the plant was one which required a hot climate. Careful comparison of the information which was then within reach made it probable that the plant or plants were natives of temperate climates. The author of this note gave it as his opinion, in the year 1827, that the Chinese tea plant or plants might be successfully cultivated in the Himalayan Mountains; and in an essay on the subject in his "Illustrations of Himalayan Botany," in 1834, entered into the details of facts, and his reasoning from them. The Indian Government having at this time determined to attempt the cultivation of tea in any suitable locality in these mountains, a plant was discovered in Assam, of which the leaves were there manufactured into tea, and which was supposed to be either the true, or a variety of the, tea plant of China. The plant, however, flourishes in a warm moist climate, and has much larger leaves than the China plants. This discovery, however, led to the establishment by the Indian Government of farms for the growth of tea. Chinese, acquainted with the processes, were invited into Assam to take charge of the manufacture. Success having attended the measure, the whole of the establishment was transferred to the Assam Tea Company, from whom some samples have been received: others are exhibited in another part of the building. Two samples have also been sent from Chinese planters who have settled in Assam.

At the same time that the culture of the indigenous plant was established in Assam, tea seeds were obtained from China; but chiefly from the most southern tea districts, from whence there is reason to believe most of the manufacturers have also come. The tea seeds on their arrival in Calcutta were sown in tubs, and the plants afterwards sent to Assam, as well as to Dr. Falconer, who planted them in nurseries in Kémaon and other Himalayan districts. There these Chinese tea plants grew and flourished even in situations where they were occasionally covered with snow. They flowered in the third year, and ripened their seed, from which time the culture has continued to encrease. Millions of seeds are sown annually, so as now to occupy about 1,000 acres, in different situations, from Kémaon to the hill tracts newly acquired from the Seiks. Some uncertainty existed at one time about the methods of making the best kinds of black and of green teas. Some who had resided at Canton having

stated that the Chinese made either green or black tea from the same plant; others, that they could not do so without the aid of colouring matters. There is no doubt that there are at least two species of tea plant: one, called *Thea bohea* by botanists, was supposed to be chiefly employed for making black teas; the other, called *Thea viridis*, was thought equally essential for making the green teas. The Chinese tea-makers in Assam in some measure settled the question by making both kinds of tea from the same plant: and Mr. Fortune, in his visits to the tea districts on the coast of China, ascertained that the plant called *Thea viridis* was that chiefly employed in making both kinds of tea and their several varieties. The *Thea bohea* could, of course, be employed for the same purpose in districts where it is indigenous, as the great difference depends upon the manufacture and not upon the plant. The processes have been fully explained in Mr. Ball's work on the Manufacture of Tea in China. They consist, in the preparation of *black tea*, in carefully watching and regulated processes of *spontaneous heating, or slow fermentation*, of the leaves, until a certain degree of fragrance is developed. The leaves are said to *wither and gire*, and become soft and flaccid. When the proper time has arrived, the leaves are removed to the roasting pan. After being roasted and rolled two or three times, they are dried in a cylinder of basket-work, which is placed over a small charcoal fire. After the drying has continued about half an hour, the leaves are turned and again submitted to the heat for another half-hour. They are then taken out, rubbed and twisted, and, after sifting away the small dust, again returned to the sieve and drying tub. The leaves now begin to assume their black colour. The fire is deadened by sprinkling some ashes over it. The operation of rolling, twisting, and sifting, is repeated once or twice until they have become quite black in colour, well twisted, and perfectly dry and crisp. They are then picked, winnowed, and further dried.

In the manufacture of *green tea*, the freshly-picked leaves are roasted in the kuo, or roasting-pan, at once, and at a high temperature; rolled and roasted again and again, assisted sometimes with a fanning operation to drive off the moisture, and always with brisk agitation until the drying is completed.

The great difference in the two processes consists in the black tea undergoing the process of fermentation, or withering, while the leaves for the green tea are roasted without undergoing any previous change. The two samples of green tea, the hyson and the gunpowder, were prepared from the same plants as the souchong, under the superintendence of Dr. Jameson, in the East India Company's tea nurseries in Kémaon and the Deyra Doon. The quantity of tea produced is yearly increasing. Comparatively little has as yet been sent to this country, for it sells at very high prices on the spot where it is produced; and the inferior qualities, it is curious to observe, are actually carried across the British frontier, and meet the teas of China in Tibet, where the Chinese authority extends.

Mr. Warrington has called attention to the means adopted for giving a facing to tea, as purchasers were not satisfied with the natural dull, yellowish-green colour of tea. The Chinese, therefore, apply Prussian blue, turmeric, and fibrous gypsum to give it a bluish-green colour.

Mr. W. has lately called attention to a new adulteration, in which tea-dust is held together by gum, and faced with Prussian blue, turmeric, and a large proportion of

fibrous gypsum; the black tea being faced with earthy graphite or black-lead. So great is the adulteration that, though genuine teas give only about 5 to 6 per cent. of ash, the *lie* gunpowder yielded 34 and 45·5 per cent. of ash; scented caper 5·5, but *lie* flower caper 22·5; and mixtures, containing these lies, from 11 to 22·5 per cent. of ash.

Coffee has, like tea, begun to be cultivated in British India. It is chiefly grown, however, along the mountains of the Malabar coast, as in Wynaad, and in the Sheravoy Hills, near Salem. Some of fine quality has also been sent from Chota Nagpore, and the south-west frontier of Bengal. We have also some coffee from Assam.]

Green, gunpowder, and black teas, from E.I. Company's tea plantations in the Himalayan mountains in Kémaon and Deyra Doon.

Hyson teas; grey, black, and orange-flowered pekoe; Souchong, Mongpo, from Assam Tea Company.

Souchong tea and orange Pekoe, from Chinese in Assam.

Pekoe and Congou teas, grown on Government plantations, from Java.

Coffee, from Assam and from the South-west Frontier.

Coffee, from Calicut, and from Captain Morris.

Coffee (*Coffea arabica*), from Tinnivelly.

Coffee, from Sheravoy Hills, near Salem.

Coffee berry, and in husk, from Aden.

Coffee, from Java and Borneo.

Coffee from Mr. Glasson's plantation, from Wynaad.

(D.) *Stimulating and Intoxicating Drugs.*

[This group includes, in the Indian collection, opium, hemp, tobacco, and a distilled spirit from an unusual source. Opium, as required for medical use and European consumption, is produced chiefly in Asia Minor, and is commonly known by the name of Turkey opium; but India produces large quantities—a portion for its own home consumption, but the great mass for export to China. The whole process of culture is displayed in a series of drawings, and all the apparatus employed in the preparation, that is, in the collection, mixing, and drying, of the drug, in the opium agency at Patna, is exhibited, together with the opium made up into balls, and covered with the petals of the poppy stuck together with the fluid part of the opium. Though this culture is a government monopoly in the Gangetic province, it is also extensively cultivated in the states of the native princes in Rajpootana and Malwa, from whence several specimens have been sent. Opium is produced of excellent quality in the Himalayas, where the tears, as collected, are simply pressed together and dried, as is the case with Turkey opium.

The hemp plant (*Cannabis sativa*), known in Europe for yielding strong fibre for ropes and canvas, is valuable in the East for its intoxicating properties. The plant is identical with that of Europe, and is the *Kinnab* of the Arabs, whence the name *Cannabis*. It is also known by the name *Husheesh*, and has a number of poetical names assigned to it, as "cement of friendship," "exciter of desire," &c., and is supposed by some to have been the *Nepenthes* of Homer. The whole plant dried is employed for smoking; or, the leaves and capsules, without the stalks, rubbed to a fine powder, and mixed with conserves or with milk, &c., are taken to produce intoxication. A resinous secretion exudes from the upper parts, especially of the flowering stems, and is collected in various ways, and known by the name of *Churru*. This is used for the same purpose. It has lately been recommended as a medicine to allay rheumatic and neuralgic pains, as well as to control muscular spasm. Hence, preparations of it

have been included among the medicines sent from Calcutta.

The spirit from an unusual source is that which is distilled from the flowers of the muohwa tree (*Bassia latifolia*). These abound in saccharine matter. They are, therefore, as they fall, collected and eaten by the natives; but, subjected to fermentation, a spirit is produced, which, being distilled, forms the common arrack of many parts of India. The flavour has been by some compared to that of whiskey. The tree is particularly valuable, on account of its seeds yielding a vegetable fat, likely to be useful in candle-making. See OIL SERIES.

Tobacco, a plant of the New World, has come to be universally cultivated in Asia, as in Europe. The plant is grown with great care in many parts of India, especially in rich soil near villages. But the natives totally neglect the curing of tobacco, upon which so much of its value depends in the European market, either for smoking or for making into cigars. This, to the natives of India, is of less consequence, as they mix the dried leaves of tobacco with coarse sugar or conserves of different kinds to smoke in their hookahs. Some excellent tobacco is, however, produced in different and very widely separated parts of India, as Sandoway in Arrakan, different parts of the Peninsula, and in Central India. It is probable that such tobacco as is acceptable in the European market might be produced in India, if equal care was bestowed on the growth and curing as well as on the packing of tobacco. — (See *Illustrations of Himalayan Botany*, pp. 282 to 289.) But there is great consumption in the country itself, both for smoking and for making cheroots, of which several specimens have been sent for exhibition from Chinsurah, in the neighbourhood of Calcutta, as well as from Salem and Trichinopoly.]

Tobacco, Ishay, from Arrakan.

Tobacco, from Gwalior, Maharajah Rao Scindia.

Tobacco, from Malwa.

Tobacco and cheroots (*Nicotiana tabacum*), from Trichinopoly, Salem, and Java.

Cheroots of sorts, from Trichinopoly.

Cigars, from Java.

Cigars: imitation Manillas and Havannahs, common Chinsurahs, imitation Havannahs, made at Chinsurah, of Sandoway tobacco, and of picked Bengal leaf at Chinsurah.

Opium, from Gwalior—Maharajah Rao Scindia.

Opium, country, Kano, from Assam.

Opium, Thallawar, twenty-five, and Jhallawar three years old, from Rajpootana.

Opium, prepared, from Rajah of Kotah.

Opium, complete series, exhibiting whole process of manufacture, from Patna.

Opium, specimens of, from Benares.

Opium (Government), from Khandeish.

Opium, as taken from the field, as seed, and as prepared for exportation, from Malwa.

Opium, from Nepal.

Cheek opium. This and the two following articles form a complete series. The bhattas as prepared for exportation to China; the cheek or raw juice; the poppy head, containing the seed and showing the mode of incision by which the opium juice is extracted—the three lines together are one day's incision; each head will show how many separate days it was available.—Bombay.

Opium, from Kandeish. The specimen sent is from the government stores at Dhoolia, in Kandeish.

Hemp, Ganja (*Cannabis sativa*), from Rajpootana; Bhungeera and seed, from Kémaon; Ganja, from Calcutta; Churus and Ganja, from Nepal.

Muohwa flowers (*Bassia latifolia*), and spirit distilled from them, from Rajpootana.

(E.) *Spices and Condiments.*

[Spices are proverbially the produce of the Spice Islands; but they are not all obtained from these islands, and, of late years, those which were peculiar are now cultivated in other situations. The true cinnamon, for which Ceylon is famed, is also now cultivated in Java and Malacca, as well as in parts of the western coast of the Indian Peninsula. What is so called from Assam is rather a kind of cassia. Cassia and cassia-buds are produced on the Malabar coast. The cassia leaves, *Malabathrum* of the ancients (*Tamala patra*), are used for the same purposes as bay leaves in Europe. Nutmegs are now cultivated of excellent quality in Penang, whence they have been sent for exhibition, as well as from Singapore and Tinnivelly, in the Peninsula of India. The wild nutmeg (*Myristica tomentosa*) is the produce of a different species. Attempts have been made to introduce the true nutmegs, when gathered from trees growing wild, at a lower rate of duty; that is, for the same duty which these wild nutmegs are charged, though they are very inferior, and the produce of a different species of plant. Mace, which is one of the coverings of the nutmeg, is, of course, obtainable from all places where the nutmeg is grown. Black, round, and white pepper, the produce of one plant, are, as in the earliest times, grown on the Malabar coast. The capsicum, considered by botanists to be a native of the New World, is cultivated in every part of India, and universally employed as a condiment by the natives in their curries: that grown in Nepal is considered by many to be very high flavoured. The small cardamoms, like pepper, are long-established products of the Malabar coast. The large cardamoms are produced in the forests along the foot of the Himalayas, though the plant producing them has not been clearly made out. Among the small carminatives, the *Ptychotis ajowan*, seems worthy of notice, from the fineness of its flavour. It appears to have been one of the kinds of ammi of the ancients, and nearly allied to the *Ammi copticum*. The black seeds of *Nigella sativa* continue to be used as a condiment, as in the most ancient times, being the *Melanthion* of the Greeks.

Ginger, a native of India, though extensively cultivated both on the plains and mountains of India, brings an inferior price in the English market to that from the West Indies, though it is there, probably, an introduced plant. If the Indian was more carefully cultivated and scraped, so as to become white ginger, it would, no doubt, bring a higher price; much of that from Travancore, as well as from Malabar, is of excellent quality. Turmeric, like ginger, is universally cultivated, being a common condiment in curries, and likewise used as a dye. Several varieties are grown in different parts of India.]

Cinnamon, from the Government plantations, Java, and from Malacca.

Cinnamon, or Cassia, from Assam.

Cinnamon, Darcheenee; cinnamon flowers, Darcheenee ka phool, from Nepal.

Cassia (*Cinnamomum albiflorum*), from Assam.

Nutmegs, from Penang and Tinnivelly.

Nutmegs, as plucked from tree and shelled, from Singapore.

Nutmegs, from Sarawak, Borneo.

Wild nutmegs, unshelled and shelled, from Ceram, Moluccas.

Mace, from Singapore, Tinnivelly, Penang, and Sarawak, Borneo.

Cloves, from Penang, Sarawak, Borneo, and Tinnivelly.

Cassia leaves, from Travancore.

Cassia leaves, Tejpat, from Nepal.

Spices, from Malacca.

Round pepper (*Piper nigrum*), from Assam.

Black pepper, from Travancore, Singapore, Sumatra, and Sarawak, Borneo.

White pepper, from Travancore, Singapore, and Sumatra.

Wild pepper, from Travancore.

Long pepper, from Assam and Java.

Peepul (*Piper longum*), from Bengal.

Cayenne pepper, from Sarawak, Borneo.

Bootan chillies (*Capsicum frutescens* and *Capsicum fastigiatum*), from Assam.

Chillies, from Bootan.

Small chillies.

Chillie pepper, Lal mirch, from Nepal; Tunboo, from Bhotan, Nepal.

Hill cardamoms, Paharie elachie, from Nepal.

Cardamoms, varieties of (*Elettaria cardamomum*), from Travancore.

Cardamoms, a kind of, from Assam.

Cardamoms (*Cardamomum medium*), from Bengal.

Coriander, Dhuncea (*Coriandrum sativum*), from Assam and Nepal.

Cumin seed, Ajwain, and other carminatives (*Cuminum cyminum*, *Ptychotis ajowan*, *Anethum sowa*, *Nigella sativa*), from Bengal and E. I. Co.'s Dispensary.

Star aniseed (*Illicium anisatum*), imported into Calcutta from China.

Fennugreek, Methee, from Nepal.

Betel nuts (*Areca catechu*), from Assam.

Betel nut, Areca nut, from Travancore.

Betel nuts, from Sarawak (Borneo) and Singapore.

Mustard seed, kinds of, Race, Surson, Padshahee race, and Toree, from Nepal.

Ginger (*Zingiber officinale*), from Travancore.

Ginger, Udrukh, from Nepal and Assam.

Zingiber Cassumnar, Bunada, from Bengal.

Turmeric (*Curcuma longa*), from Assam.

Turmeric (*Curcuma longa*), from Cuddapah.

Turmeric, from Java.

Turmeric, Huldi, from Nepal.

Sort of onion, Chappee, from Nepal.

Garlic, Lahson, from Nepal.

Sweet, Cashmere, camp, and cussoondie chuttnies; tap sauce; curry powder; guava jelly; pineapple marmalade; mango preserve; guava cheese—from Calcutta.

(F.) *Starch Series.*

[The name of this group will not indicate to the public all the substances included under it, as the term starch is usually applied to the preparation employed for giving stiffness to clothing of different kinds. The term is here employed to include a number of substances, often called arrow-root, obtained from various parts of plants, as the root and tubers, stem and fruits, usually in the state of white flour, insoluble in cold but easily dissolved in boiling water. For a long time the West Indian arrow-root (*Maranta arundinacea*) was considered the only good kind; but a very useful kind is yielded by a species of Canna, which is also cultivated in the West India Islands, and belongs to the same natural family. The *Maranta arundinacea* is now cultivated near Calcutta and in other parts of India. But large quantities of an excellent substitute are obtained in India from different species of *Curcuma*, all of which have not been clearly ascertained, though the arrow-root obtained from them has been sent from a variety of places. That of Travancore is known as a regular article of export; but it might be produced in large quantities from various parts of India.

An analogous substance is the sago meal obtained from the stems of different kinds of Phoenix and of other palm trees in India. Of this, one kind has been sent from Cuttack. The so-called sago meal is deposited in the cellular

part of the stems of the sago palm (*Arenga saccharifera*), "the pith of which is the staff of life to the inhabitants of the Moluccas"—(*Roxburgh*). Sir John Maundeville says, "In that land grow trees that bear meal, of which men make good bread." The sago palm grows extensively in Sumatra, from whence the sago flour is imported into Singapore, and then granulated into the different kinds of sago. In the form of sago cakes it constitutes the principal food of the natives of the Moluccas, especially during their sea voyages. Plantain meal, obtained from the fruit of the plantain, or banana, may be employed for the same purposes, though it is not so white-looking as arrow-root. Plantains form a large portion of the food of the negroes in the West India Islands. In Guiana the meal is used as a nutritious article of diet.

The seeds of *Nelumbium speciosum* and of *Trapa bipinnosa* abound so much in starch, that it may be easily separated from them. Both are employed as articles of diet among the natives of India, and may well be arranged in the starch series.

Salep, or, as commonly called, *Salep misree*, may also be placed here, though the tubers are not exactly of the nature of starch, but consist of bassorin, or insoluble gum, with some soluble gum and starch. These tubers, produced by different species of Orchids, are highly esteemed in India for their nutritious qualities. The best kinds, which are brought from Candahar and Afghanistan to the Hurdwar fair, sell for a very high price. The kinds produced in India are, however, possessed of much of the same properties.

Along with the starch series are also ranged the different kinds of *Agar agar*, which have been sent from Singapore, and which are so much in request as objects of Chinese commerce. These are varieties of *Alga*, or seaweeds, very similar in their properties to Carrageen or Irish moss, and to Ceylon or Jaffna moss, which is collected at Jaffnapatam. They have by some been thought to be identical with it; but the specimens of Ceylon moss, in the author's collection, do not correspond with all these *Agar agars*; and it is probable, therefore, that some are yielded by different species of plants allied to the genus of the Ceylon moss, which is now called *Plocaria candida*.]

Arrow-root, kinds of, from Assam, Calcutta, Rutnagherry, Vizagapatam, Borneo, and Java. (*Curcuma angustifolia leucorrhiza*, &c.)

Arrow-root (*Rutnagherry*). The "Kutcherra," or root from which this flour is prepared, grows in all the villages in the southern Kōkun. It is used in the jail, where the quantity made during the year amounts to about 18 maunds, or 504 lbs. West India arrow-root was introduced into the gardens at Rutnagherry by the collector, Mr. Elphinstone, in 1840 or 1841; it thrives exceedingly well, but it is not grown to any extent. The quantity of flour prepared from this root is about one maund, or 28 lbs. (annually?) as the native, by whom it is cultivated, has not obtained a sufficient number of plants to extend his experiments, Mr. Elphinstone having given up his garden in 1844-45. The jail arrow-root sells from 4½ to nearly 4½ annas per lb.; whilst the West India arrow-root sells at 5 annas 4 pice per lb., or 3 lb. per rupee.

Arrow-root flour, from Calicut.

Sago meal (*Phanix*), species of, from Cuttack.

Pearl sago; sago flour; sago cakes; pith of sago palm. Principal food of natives of Malacca, also made by them into soup.

Tapioca, from Calcutta and Rutnagherry.

Tapioca (*Rutnagherry*). Tapioca was also introduced into the gardens at this station by Mr. Elphinstone in 1840, and the total quantity of land sown with slips of

this plant, amounts to about three beehas. This cultivation is carried on in a garden attached to the jail, and on some land belonging to a native. This individual prepares about 15 maunds yearly, and 3 maunds are made in the jail, in all 18 maunds or 504 lbs. The jail tapioca sells at 10 rupees per maund; whilst that prepared by the native realises from 12 to 15 rupees per maund, as he disposes of it by retail sale at Bombay.

Tapioca and arrow-root flour is prepared by rasping the roots down to a pulp, which is steeped in clear water, after which the fibre is separated by the hand, the fine flour being allowed to settle at the bottom; the fibrous part or stuff is eaten by cattle, and seems to be very nutritious. The root may be roasted and eaten as yams. The flour, prepared as above described, becomes purer in proportion to the number of times it is washed in water, which has to be changed twice a day to prevent its souring or becoming acid, which injures the flavour of the flour.

Of the quantity of flour, both tapioca and arrow-root, one-third is consumed at the station, and the remaining two-thirds are sent to parties applying for it from Bombay. The native manufacturer retails his own produce at Bombay, as he makes a greater gain than by wholesale to the chemists and druggists. I have not heard of any Rutnagherry tapioca or arrow-root being exported to England or any other European country."

Flour of *Nelumbium* seeds (*Nelumbium speciosum*), from Cuttack.

Salep, Salep misree, obtained in Calcutta, from the north-west of India.

Plantain meal, from Madras.

Agar Agar.—1st quality obtained from Malacca. A sort of edible sea-weed, which grows on the rocks that are covered by the tide. It is much used for making a kind of jelly, which is highly esteemed both by Europeans and natives for the delicacy of its flavour. From Singapore Committee.

Ditto.—2nd quality, obtained from Macassar (Celebes). It is an edible sea-weed, collected on the submerged banks in the neighbourhood of Macassar by the Bajow Laut or sea Gipsies, for exportation to China. Ditto.

Ditto.—Obtained from Singapore, and collected on the reefs and submerged ledges in the vicinity of Singapore, and constitutes the bulk of the cargoes of the Chinese junks on their return voyage. It is much used there as a size for stiffening silks and making jellies. Ditto.

(G.) Sugar Series.

[The increased growth and manufacture of sugar in India have often attracted attention in Europe, in order to ascertain whether it could be supplied in such quantities and at such prices as to contend with slave sugar in home markets. From the larger capital which has been invested in the manufacture of sugar by Europeans, and from the increased exports of sugar from India, it would appear that capitalists are of opinion that this can be done. But the great demand there is in India for sugar for home consumption, and the rapidity with which prices are run up in the interior whenever an increased demand occurs from Europe, have prevented the much larger exports that might have taken place, or the expected profits being realized on its arrival in this country. One thing is very evident, and that is, the great improvement which has taken place in the manufacture of sugar by the different European Companies which have been established in India, as displayed in the specimens sent for exhibition from Cossipore and Ganjam, from the Deccan, and from Shajehanpore. The sugar-candy from Bikaner is interesting, because it is sent from a district where the sugar is not produced; in fact, from a desert-like country where the sugar-cane cannot be grown. But sugar in a raw state is imported from the plains, and after being purified and crystallized is sent back again and brings a good price,

as it is valued both by Europeans and by natives of rank. These also consume a good deal of the sugar-candy of China.

Among the sugars another very interesting feature is, the variety of plants from which sugar is obtained, and of which specimens have been sent. Though the sugar-cane yields by far the largest quantity, yet in some districts the wild-date palm (*Phoenix sylvestris*) is the principal source, as in some of the districts of Bengal. In the Madras Presidency much sugar is obtained from the Palmyra palm (*Borassus flabelliformis*), and in the straits from the gomuti or sago palm (*Arenga saccharifera*). A specimen has also been sent of sugar obtained from the Neepah, a plant allied to the *Pandanea*, or screw pines, and which lines the shores of many parts of the Malayan peninsula, as well as of many of the Eastern islands. The *Bassias*, which have been mentioned as the sources of a distilled spirit, also yield sugar, though this is more frequently fermented than separated from the flowers in the form of sugar.

Following the sugars, a very good specimen of manna from the tamarisk is displayed, having been sent to the author of this note by Dr. Stocks from Scinde.]

Loaves of sugar manufactured after European and native methods, from Shahjehanpore, in district of Rohilkund.

Sugar (*Saccharum officinale*), from Aska, in Ganjam.

Sugar from the Deccan.

Indigenous Sugar. "Made by the simple process described in the 'Transactions of the Bombay Agricultural Society of 1839.' Could be afforded at 7 to 8 rupees per maund of 84 lbs."—Bombay.

Sugar from sugar factory at Cossipore.

Sugar candy; native crystallized sugar candy; from Bickaneer. Rajah of Bickaneer.

Sugar made from the juice of spathe of the Gommuti palm, from Java.

Date sugar (*Phoenix sylvestris*), from Dacca.

Neepah sugar (*Nipa fruticans*), produced in Burman and Malayan peninsula.

Sugar of Muohwa flowers, or those of the butter tree (*Bassia butyracea*), from Kémaon.

Sugar, manufactured in Dutch high-pressure vacuum pans, and by a new process not generally known, made in common open battery, from Sourabaya, Java.

Sugar, manufactured in low-pressure vacuum pans, from Probolinggo, Java.

Yestinado, substitute for liquorice root (*Abrus precatorius*), from Tanna.

Tamarisk manna from Scinde.—Dr. Stocks.

CLASS IV.

VEGETABLE SUBSTANCES USED IN MANUFACTURES.

[The natural products of this class are separated from the last because they are employed chiefly in the arts and manufactures, or as medicines; yet some of them are also used as articles of diet—as, for instance, many of the fatty oils and gum in some parts of Africa.

Gums, Resins, and Gum-resins.

In mercantile language, the word *gum* indicates very dissimilar substances—that is, either a *gum*, a *resin*, or a *gum-resin*. But the word *gum* signifies a vegetable exudation which is soluble in water, and *resin* one that is soluble in spirit, while *gum-resin* indicates those which contain both gum and resin. Without chemical analysis, it is not always easy to say to which of these groups a new and unknown substance belongs.

As Africa produces and exports the largest quantity of the gum of commerce, we might expect that some of it would reach India with other African products from the East, or Somali Coast, through Aden and Arabia. Some

fine specimens of gum have been sent from Aden, produced probably by different species of *acacia* which abound in the arid plains of Africa. In India a good deal of gum is yielded by *Acacia arabica*, and by other species of the same genus. Gum is also yielded by species of other genera, as *Feronia*, *Melia*, *Mimusops*, and a substitute for tragacanth by species of *Cochlospermum* and of *Sterculia*. It would be extremely interesting and important, as showing their application to different purposes in the arts, to ascertain their exact composition, and the means by which the less pure kinds of gums might be purified. Some of these, though not purely such, are more useful for their astringent properties, as those of *Butea*, *Bombax*, *Moringa*, and *Diospyros*. Among the resins, that called *Sondroos*, and by European merchants, *Assini*, and *Copal*, is imported into this country from India. It is the produce of Africa, and forms one of the imports into Aden. The tree yielding it is unknown. This resin has sometimes been thought to be the produce of *Vateria indica*; but this yields a resin which exudes in the liquid state, and is known by the name of *Piney varnish*. Some fine specimens have been sent in bottles, and are in a semi-fluid state. Others are in a dry state, and form a pure resin. A greenish-coloured resin from Coorg, of which the source is unknown, also appears very pure, and might, like the former, be employed for making varnishes. The most abundant of the resins is that of the saul tree, *Shorea robusta*, which is itself an invaluable timber tree. It is used for all the purposes of resin, and for paying the bottoms of boats in India. It is known by the names of *Dammar*, *ral* and *dhoona*. The name *Dammar* signifies resin in general, but is most frequently applied to the resin of a pine, the *Dammara australis*, of which specimens have been sent from Malacca. Among the fragrant resins, the olibanum may be mentioned, which is used in India as incense. That produced in India is obtained from *Boswellia thurifera*, while that imported from Africa is the produce of probably another species of *Boswellia*. Myrrh is imported from Africa, and assa-fetida, ammoniacum, &c., from the Persian Gulf. Bel-lilium, an inferior kind of myrrh, has been shown by Dr. Stocks to be produced by a species of *Balsamodendron*. Dr. Nicholson has discovered it in Kattywar, and it is probably produced in other parts of India. Benzoin is a well-known product of the island of Sumatra; but a kind is stated to be produced in Malabar, of which the source has not been ascertained. The storax sent by the Rajah of Kotah has probably been imported into India.

The oleo-resins have not attracted that attention which they deserve: the kind called *Gurjus*, obtained from a species of *Dipterocarpus*, yields an oleo-resin very similar to balsam copaiba.

Caoutchouc and Gutta Percha.

Among these are some original specimens; as the caoutchouc sent from Assam to Mr. Swinton, and the specimens collected by Capt. Vetch, which are very pure, have little colour, and retain all their original properties. New sources of this useful substance are indicated in the specimens from Singapore.

The specimens of gutta percha are interesting, as being some of the original ones sent by Dr. Montgomery to the India House, and from whence specimens were distributed to numerous experimentalists. Professor Solly employed some of them in the analysis which he made on the original introduction of this substance. These are sent by Colonel Bonner, of the East India House.]

(A.) Gum and Resin Series.

Gum Babool (*Acacia arabica*), from Bengal.

Gum Arabic, from Aden (imported from Somali coast); Kheir gum of *Acacia catechu*, from Rajpootanah; Jumina jegota (*Acacia leucophlea*), from Vizagapatam; Babool taca, keekur gond (*Acacia farnesiana*), from Bengal.

Gum gattie, Babul tree, from interior of Bombay.

Gum Gattie is a gum produced in the Concan, Guzerat, and Dekkan, from the common "babool" or *acacia arabica*, very similar to gum arabic. Re-exported chiefly to Great Britain: annual importation 360,867 lbs.

Gum from margosa tree (*Melia azadirachta*), from Madura, Tinnivelly, and Palamcottah.

Gum of wood apple tree (*Feronia elephantum*); Pagada jegota (*Mimusops elengi*); Mallaga jegota (*Moringa pterygosperma*), from Vizagapatam; Ballee gond (*Sterculia urens*), or spurious tragacanth.

Spurious Tragacanth. Ballee gond, the gum of the *Sterculia urens*. This comes from the neighbourhood of Tanna; it is all that the committee have been able to obtain, and was taken from a private collection. It is not sold in the bazaar of Bombay; it has been sent, at the request of the Central Committee at Calcutta.

Kuteera, or spurious Tragacanth (*Cochlospermum gossypium*), from Meerut.

Gums, small collection in bottles, from Sarawak, Borneo.

Resin of saul tree (*Shorea robusta*), from Bengal and Bhagulpore; Guggilam (*Vatica tumbuggaia*), from Canara and Vizagapatam.

Copal, Soondroos—sent from Bombay.

It is imported here from the Persian and Arabian gulfs, and re-exported chiefly to Europe.

Piney varnish (*Vateria indica*), from Malabar and Canara.

Piney resin of dhoop tree (*Vateria indica*), from Canara.

Resin of Tendoo, kind of ebony (*Diospyros*), from Rajpootanah.

Meka sta-Dhoona, from Assam.

Thenganet resin, for paying bottoms of ships, from Arracan.

Thenaththu, coating to paper umbrellas and varnish, for manufacture of papier maché; Thetsee (*Melanorrhæa usitata*), used as lacquer, from Arracan.

Black varnish, from Assam. Resin of (*Odina wodier*), from Calcutta and from Meerut.

Nareeda jegota (*Eugenia jamboo*), from Vizagapatam.

Pitch of gaup tree (*Embryopteris glutinifera*), from Bhagulpore.

Different sorts of dhoop, a perfume, from Nepal, Bhotan.

Olibanum, saleh gond, Loban (*Boswellia thurifera*), from Chota Nagpore.

Dikanali gum (*Gardenia lucida*), very effective in keeping vermin from wounds, from the interior of Bombay. It exudes in amber-coloured transparent drops about the ends of the shoots, and from thence is collected.

Jelladi pulu (*Calotropis gigantea*), from Vizagapatam.

Resin, Dammar, from Malacca, Java, and Sumatra.

Resins and guttas, great variety, from Sarawak, Borneo.

Fir turpentine (*Pinus longifolia*), from Cheera Poonjee hills, Dacca. Resin, from Ulwar.

Balsam storax, in silver box, from Rajpootanah.

Benzoin (*Styrax benzoin*), from Sumatra.

Benzoin, from Malabar and Canara.

Gum resins, as asafetida, ammoniac, &c., imported into Bombay from the Persian Gulf.

Gum Ammoniac is imported into Bombay from Persia and Arabia, and chiefly re-exported to Great Britain. Annual importation, 132,296 lbs.

Gum Gojar. Of this gum no account has been obtained. It was sent in anticipation that an account of it was forthcoming, but none has reached the committee.

Asafetida. This gum is imported from the Persian Gulf and Sindh, and chiefly re-exported to various parts in India. Annual importation, 324,920 lbs.

Bdellium, a kind of myrrh, from Aden.

Bdellium, from Bombay. Two kinds of this gum have been discovered, one, which is thick like wax, and the

other the common dark sort. It is found principally in Persia, Arabia, Cutch, and Sindh, and is chiefly re-exported to Calcutta and China: it is used in medicine. Average annual importation, 177,887 lbs.

Bdellium, from Cutch. This is collected in Cutch; but probably the greater part imported there is from Arabia, and the Somali coast of Africa.

Nepalapi pulu (*Jatropha Curcas*); Mersakslii (*Amyris commiphora*), from Vizagapatam and Ganjam.

Olibanum, from Aden, from Somali coast.

Myrrh, Herabole and Byasbole.

Dragons-blood, from Aden, imported from Somali coast.

Heraduuccun (Bombay). "The produce of a large

species of ratan, growing on the north and north-east coasts of Sumatra and in some parts of Borneo, and imported in small quantities to Bombay. It is either in oval or round drops wrapped up in flag-leaves, or in large and generally more impure masses composed of smaller tears. It is internally and externally of a dusky red colour, and when powdered it should become of a bright crimson; if it be black, it is worth very little. It is somewhat transparent, and has little or no smell or taste; what it has of the latter is resinous and astringent. Dragons-blood is far preferable to that in cakes, the latter being more friable and less compact, resinous, and pure, than the former. Being a costly article, it is very apt to be adulterated; most of its alloys dissolve like gum in water, or crackle in the fire without proving inflammable; whereas the genuine dragons-blood readily melts and catches flame, and is scarcely acted on by watery liquors. It is often confounded with gum kino; but a little observation would easily discover the difference. No imports of it took place in 1847-48 or 48-49. In 1849-50, however, 586 lbs. were imported, and re-exported to various places in India.

Gamboge. It is imported from Singapore, China, and the Straits of Malacca, and is chiefly re-exported to Great Britain. Annual importation, 26,804 lbs.

Cutteemundoo, or Kattimundoo gum (*Euphorbia neriifolia*). This gum is described as being useful in cementing iron with other substances, the blade and handle of a knife for instance.

India-rubber from *Ficus elastica*, collected by Captain Veitch, &c., in Assam.

India rubber, Gum caoutchouc, from Lampung, Sumatra; Manjegatu (*Ficus indica*), Atti jegota (*Ficus racemosa*), from Vizagapatam; Camboley (*Morus indica*), from Paulghat.

Gutta-percha. Some of the original specimens sent by Dr. Montgomery to the India House.

Gutta percha (*Isonandra gutta*), from Johore, Malay Peninsula.

Gutta trap used for birdlime (*Artocarpus*), from Singapore.

MACINTOSH & Co. Cambridge St. Manchester, and 73 Aldermanbury, London—Importers, Manufacturers, and Patentees.

1—4 Specimens of India-rubber, from Assam.

5—7 Specimens of India-rubber, in process of cleaning, in masticated block, and in thin cut sheets.

8—10 Specimens of India-rubber in laid sheets, in colours, and in solution.

11 Specimens of India-rubber, laid on various fabrics as material for making waterproof articles.

12 Specimens of India-rubber embossings for making up various fancy articles.

13 Specimens of India-rubber thread for weaving into various elastic articles.

14 Specimens of India-rubber thread for ladies' knitting and crochet work.

Birdlime, bor attock, from Assam.

Varieties of raw caoutchouc and its preparations for various manufactures, consisting of the wood, the coagulated juice, of the caoutchouc from Assam; raw caoutchouc from Assam, Singapore (*Urceola elastica*, the Jintawan of the Malays), from Para, Jamaica, &c.

Caoutchouc in the processes of being cleaned, corru-

gated blocks, sheets cuts from blocks, and also in spread sheets.

Caoutchouc vulcanized in a sulphur bath; sulphurized by mechanical mixture; ditto vulcanized; blocks vulcanized; sheets vulcanized for various purposes; thread ditto for elastic fabrics; sheets coloured and vulcanized; embossed and modelled caoutchouc vulcanized; cloth for waterproof clothing and articles of various fabrics; double and single textures vulcanized; sheets *converted*, coloured, converted, and vulco-converted; dough for spreading into sheets, and varnishes prepared of caoutchouc, &c.

The process of treating caoutchouc with sulphur, by means of heat, since called vulcanizing, was discovered by Mr. Thomas Hancock, and patented by him November 23, 1843. The remarkable changes effected by this treatment of caoutchouc are:—1st. Its resistance to the effects of climatic temperature, neither being stiffened by cold nor injured by heat. 2ndly. It resists the destructive action of the common solvents of caoutchouc, merely absorbing them as a sponge does water, but without being dissolved in essential oils. 3rdly. Its greatly increased and permanent elasticity.

These valuable properties, imparted by vulcanizing, have opened to the uses of caoutchouc, previously very limited, many important and extensive applications to manufactures and engineering.

(C.) Oil Series.

[This series includes both *volatile* and *fatty*, as well as *solid* oils, or vegetable butters and tallows, as they are also called. India is rich in all the three groups of oils; and among them are some which are little known in Europe, though they are well calculated from their good qualities, abundance, and cheapness, to become valuable as articles of commerce, and from their fitness for candle and soap making. Among the volatile oils are the famed *atr*, *utter*, or *otto* of roses, and with it some fine rose-water from Mr. Godfrey, of Ghazee-pore. *Grass* oil, often called, though erroneously, *Oil of Spikenard*, has been sent from several parts of Central India, as well as from Sumatra, under the name of *Siri*, or Lemon-grass oil. It is probable that they are all produced by species of the old genus *Andropogon*: though, without authentic specimens of the plants from each place, it is not possible to identify these correctly. It is probable that one of them is the sweet cane, or sweet *calamus* of Scripture. Sandal-wood oil and the essence of *Ketgee* or *Keora* (*Pandanus odoratissimus*), are highly esteemed in the East, as well as that prepared from the *Uggur*, or *Agila* and *Ahila*, the aloes-wood of Scripture. With all these may be enumerated several essential oils from the Moluccas, as well as scents from Ghazee-pore. The latter are solutions of the scents in the finer fixed oils.

With these volatile oils may be noticed the camphor of Sumatra, often called *Barus* camphor, which has been forwarded from Borneo, *vid* Singapore. This kind, found in a solid state in small pieces within the wood of *Dryobalanops camphora*, is so highly valued by the Chinese, as to be bought by them at a much higher price than they sell their own purified camphor for, though Europeans cannot perceive that it is in any way inferior.

This is probably as suitable a place as any for noting the Kayu Garu, or *Agala* wood, Lignum aloes, and Calambac wood of commerce, which is produced in Sumatra and Malacca, as also in Silhet. In the last, by *Aquilaria agallocha* of Roxburgh, figured by the author in his "Illustrations of Himalayan Botany." That of Malacca may be produced by the same species; that of Siam is produced by the *Aloerylum* of Loureiro. It is highly esteemed in China and in Turkey. In the former it is reduced to a

fine powder, mixed with a gummy substance, and laid over small slips of wood, which are burned in their temples to give out a fragrant odour.

The true Spikenard, or Nardos, compared by the Arabs to the tail of an ermine, is arranged here with aloes-wood, as it also forms a scent highly esteemed in India and other Eastern countries.]

Volatile Oils.

Otto or atr of roses (*Rosa glandiflora*), from Ghazee-pore.

Oil or atr of roses, from Rajpootana.—Rajah of Kotah. Rose-water, by Mr. Godfrey, from Ghazee-pore.

Grass oil (*Andropogon Martini*; *Schœnanthus? muricatus*: *A. calamus aromaticus*, Royle), from Malwa.

Grass oil, with the grass and seed, from which it is extracted, contributed by R. C. Hamilton, Esq., from Malwa.

Lemon grass or siri oil, from Sumatra.

Oil of cloves (*Oleum caryophylli*), from Madras.

Cajaputi oil, Kaya patch, from Malacca.

Sandal-wood oil, Chendana tel, Sundana yennai (*Santalum album*), from Mangalore and Canara.

Ketgee oil (*Pandanus odoratissimus*), from Rajpootana.

Kitichee; Uttur khera, green-pined screw pine, white flowered; Uttur khetkee, green-pined screw pine, yellow flowered (*Pandanus odoratissimus*), from Rajpootana.

Uggur, or oil of aloes-wood, from Nepal.

Compound oil of aloes-wood, from Rajpootana.

Essential oil of aloes-wood, from Ghazee-pore.

Saffron oil, from Rajah of Kotah, Rajpootana.

Scents of chumpa, jasmine, &c. (*Mitchelia champaca*, *Jasminum grandiflorum*, and *J. sambac*), from a native perfumer at Ghazee-pore.

Essential oils and scents, from the Moluccas.

Camphor, commonly called *Barus* camphor, from Borneo, much esteemed in China, erroneously said to be used to flavour the Chinese camphor.

Kayu garu, Uggur, Agila, Eagle or aloes wood, from Sumatra and Malacca.

Spikenard, balchur and jatamansi, *Nardostachys jatamansi*, both used for making scents. Himalayas.

Fatty Oils.

[These are very numerous in India, being employed by the natives both as articles of diet, for anointing their bodies, and for burning in oil-lamps. Some of them are cultivated by the agriculturist, as the poppy, linseed, sesamum, ramtil, or *Guisotia*, ground-nut, and the different kinds of mustard-like plants, so also castor-oil and safflower. The shrubby *Jatropha curcas* is grown in hedges, &c. Oil is also expressed from the seeds of large trees, as the Cocoa-nut, the Kurrunj, Chironjee, Neem, Margosa, Poontree, and many others, of which the peculiar properties are not well known, as fitted for different purposes, but all can be obtained in large quantities.

But the solid oils, or vegetable butters, such as the cocoa-nut in temperate climates, are of great interest, and several have been sent from India. Of these, that of the *Bassia butyracea*, from the neighbourhood of Almora, in the Himalayas, has several times been written about, but it occurs only in small quantities; that of the *Bassia latifolia*, or Muohwa tree, has been analysed by Mr. Hardwick, who has sent specimens of the *Bassic* acid, which he obtained from this vegetable fat, which closely resembles the solid oil of another species of *Bassia*, that is, *B. longifolia*, which is common in the Madras, as *B. latifolia* is in the Bengal, Presidency. This has already been mentioned as secreting sugar in its flowers, which, being fermented, yields, by distillation, the common arrack of the country. From the great abundance of both species, a plentiful supply of the oil might be obtained, and at a cheap rate. The natives could supply their own

waxes with the oils from the annual plants. Another solid oil, of which the tree (*Fateria indica*) has already been mentioned as yielding piney varnish, is still more substantial in nature, and is commonly called vegetable tallow. It was examined some years since by Professor E. Solly, and its fitness for candle-making clearly demonstrated. Though the tree is abundant, it is doubtful whether the oil which is expressed from the seeds can be had in any considerable quantity—probably from the want of a regular demand. In addition to them, a vegetable tallow has been sent in a gourd from Sarawak, in Borneo, and another in bamboos from Malacca, though the trees yielding them are not mentioned. They may be the same as the *Stillingia sebifera*, which yields the vegetable tallow of China, or they may be yielded by species of *Bassia* or of *Pternandra*. One of them may be the *Minia batta*, or stone oil, which was introduced from Borneo some years since.

But without specimens of the plants or trees yielding the several oils, it is impossible to identify them when the number is so great of trees yielding not only oils but solid fats. Mr. Low mentions that several species of *Dipterocarpus* yield a fatty oil, which having been sent to England, has been extensively used under the name of vegetable tallow and vegetable wax. The seeds of one of the species, called *Menebang pinang*, yield a very large proportion of oil, which, on being allowed to cool, takes the consistence of sperm. This has been used at Manila in the manufacture of candles. In Borneo it is called by the natives indifferently "*Minyak menebang*," or "*Minyak tankowan*." Another oil, expressed from the seed of a tree called *katiow*, is called "*Minyak katiow*." It burns in lamps with a bright and clear flame, and emits an agreeable odour. The *Minyak kapayang* is another oil held in esteem for cooking by the natives of Borneo. It is yielded by the tree, called *Panguin edule* by botanists. Mr. Low mentions, moreover, that the seeds of many of the forest trees, as the *niale* or gutta percha of the Malay Peninsula, produce edible oils of fine qualities. He also refers to wood oils, called "*Minyak kruing*," which are obtained by cutting a large hole in the tree, into which fire being placed, the oil exudes. The wood oil, or *gurgum* of Silhet, is obtained in something of a similar manner from different species of *Dipterocarpus*.

The solid oils or vegetable fats sent from Bombay, under the names of *Kokum* and of *Kikel* oil, the first yielded by the seeds of *Garcinia purpurea*, and the other by the seeds of *Saleadora persica*, are remarkable for their solid consistence, and may probably be applicable to a variety of useful purposes.

The collection of oils is probably the largest in number, and at the same time one of the most valuable, that has ever been sent to this country. Though many have contributed in forming the collection, the Commissary-General of Madras, Captain Horsley, of Palamcottah, and T. Bishop, Esq., of Tanjore, may be mentioned as each sending several varieties of oils.

A specimen of vegetable wax is interesting. It has been sent from Singapore, and is said to be obtained from the island of Billitor—yielded, perhaps, by one of the above-mentioned species of *Dipterocarpus*.]

Linseed and linseed oil, tissee tel, from Moorshedabad. Linseed, grown in the interior of Bombay. Sesamum oil (*Sesamum orientale*), (black and white), from Moorshedabad.

Gingely seed (*Sesamum orientale*), from Vizagapatam and Ganjam.

Tillee oil and seed (*Sesamum*), from Gwalior. Gingely oil, Manchy noonæ, til ke tel, hind, nullenai, tamool (*Sesamum orientale*), grown in all parts of India, Vizianagrum Zemundary, Tanjore; gingely seeds, from Hyderabad.

A kind of mustard (*Sinapis tora*), from Ghazepore and Meerut. Mustard oil (*Sinapis glauca*), from Calcutta.

Annloo noonæ (*Sinapis nigra*); Rai ke tel, hind; Kadrogoo yennai, tam, from Tanjore.

Castor-oil seed, large and small, from Bellary.

Castor-oil (*Ricinus communis*), from Madura and Tinnevely; Chutta amethum; arundia; cluttanenchoo yennai. Cold-drawn castor-oil, arandee ka tel, from Tanjore.

Jungle lamp oil, Adhia amundum (*Ricinus communis*), from Tanjore. Erandee; katoo aumanakoo yennai, Castor oil; miniak jarah oil, from Java.

Jatropha oil. The uses of this oil from the *Jatropha curcas* as a drying oil have as yet hardly been tried, but it leaves a fine varnish-like polish on drying. As a medicinal oil for external applications and external use it may be found valuable. The family to which the plant belongs would indicate caution in its use as regards the human body. The plant grows extensively over the Bombay Presidency. The oil could be supplied at about a rupee for seven pints.

Bhoga Bhurinda oil (*Jatropha curcas*), from Beerbhoom.

Poppy seeds and poppy-seed oil, Gasagee noonæ (*Papaver somniferum*), from Tanjore and Calcutta.

Oil of seed of *Argemone mexicana*, Calcutta.

Koosum oil (*Carthamus tinctorius*); Safflower seeds (*Carthamus tinctorius*); oil and seed of saul tree (*Shorea robusta*), from South-west Frontier and Rajpootana.

Chiceronjee berries and seeds (*Chironja sapida*, now *Buchanania latifolia*), from Rajpootana and Moorshedabad.

Valuse nune (*Guizotia abyssinica*), from Vizagapatam.

Rain til (*Guizotia oleifera*), from Calcutta, Vizagapatam, Ganjam.

Valisalo oil, Valisalo noonæ (*Guizotia oleifera*), from Vizianagrum Zemundary, Vizagapatam, and Ganjam.

Poonseed oil (*Calophyllum*), from Madura, Tinnevely, and Palamcottah.

Pinnascottay oil, Ponna noonæ (*Calophyllum inophyllum*), from Tanjore.

Oondoe oil (*Calophyllum inophyllum*), Tannaah.

Oondoe oil. Expressed from the nut of the *Calophyllum inophyllum*. It is used as a stimulant in medicine externally and internally.

Almond oil, Badum noonæ, Badoonai yennai (*Amygdalus communis*, probably *Terminalia catappa*, which is called the almond tree in many parts of India), from Tanjore.

Poonga oil, Kanuga noonæ; Kaju ka tel; Poongar yennai, from Tanjore.

Caju apple oil, Mooltha masummerly noonæ (*Amacardium occidentale*); Kajoo ka tel, moonthery yennai, from Tanjore.

Neem oil; expressed oil from margosa berries (*Melia azadirachta*); Margosa seeds, from Bellary.

Neem oil, Vapa noonæ (*Melia azadirachta*); Neem vappa yennai, produced all over India.

Margoosa oil, Vaju noonæ (*Melia azadirachta*); neem ka tel, vappa yennai, from Tanjore.

Katchung oil, from ground nut (*Arachis hypogæa*), from Java.

Ground nut oil. Owing to its thinness and freedom from rancidity, containing little stearine, it is, Dr. Gibson thinks, used in some countries for watches and other delicate machinery. As a salad oil and a cooking oil in India it is, from its freshness, superior to olive oil. Quantities of it are annually supplied to the medical stores at Bombay. It could be supplied at five rupees per 24 lbs; without allowing profit, at two annas and ten pices per pint.

Kurrung oil, from Tannaah. Expressed from the nut of *Galedupa indica*, now the *Pongamia glabra*. It is used

externally as a stimulating embrocation, and given internally to horses with colic spasms.

Kanagu noonæ (*Pongamia glabra*), from Vizagapatam.
Country walnut, Dessy akhroot (*Aleurites triloba*);
Simboleë (*Bergera kanigü*).

Hingun or Hingota (*Balanites agyptiaca*), oil of
Moringa pterygosperma.

Mooneela grain oil, Varoo samgaloo noonæ (*Dolichos biflorus*).

Nilackadelai yennai, from Tanjore.

Solid Oils.

Cocoa-nut oil (*Cocos nucifera*), from Calcutta, Malabar, Madura, Tinnivelly, and Sarawak.

Treble refined castor oil, from Messrs. SAINTÉ of Cossipore, near Calcutta; Tonkaya noonæ (*Cocos nucifera*); Narel; Thenga yennai, from Madras.

Vegetable butter or ghee (*Bassia butyracea*), from Kémanon.

Muohwa oil (*Bassia latifolia*) from Moorshedabad.

Epie oil, Ippa noonæ (*Bassia latifolia*) Canara; Illopo zennai (*Bassia latifolia*), from Mangalore.

Elloopoo oil (*Bassia longifolia*) from Madura and Tinnivelly; Illoopoo oil, Ippa noonæ, expressed from seeds of *Bassia longifolia*, India; Illoopoo yennai, from Tanjore.

Vegetable tallow, or Piney tallow, from fruit of Dhoop tree (*Vateria indica*), from Malabar, Canara, and Mangalore.

Kokum oil (*Garcinia purpurea*). Kokum oil is obtained from the dried fruit of the *Garcinia purpurea*. It is a concrete oil. It is used as an article of food; also as a medicine externally in eruptive complaints, and internally in affections of the bowels. It is also said to be exported to England for making pomatum, as a substitute for bears' grease.

Kikool oil. The produce of the solid part of the seed of *Salvadora persica*, peeloo. The pulpy part of the seed is watery, but all parts of the tree have the strong mustard-like flavour. The roots of the tree have strong medicinal power. It is common in Palestine. It is imported here from Guzerat, and is chiefly consumed in Bombay. Annual importation, 3,843 lbs. The tree is supposed to be the mustard-seed tree of Scripture.

Vegetable tallow, from Malacca, and Sarawak, Borneo.

Vegetable wax, Gutta podoh, from Billiton.

Coorookoo oil, from Madura and Tinnivelly.

Koodree oil and Kaissoon oil, from Chota Nagpore.

Shemmandu oil, from Palamcottah.

Khatzum (*Fernonia anthelmintica* ?), from Bombay.

(D.) Dyes and Colours.

[The natives of India being celebrated for the variety as well as for the brilliancy of the colours which they employ, this group may be expected to be rich in the number of raw materials. It is so, to a certain extent; but we are unable to say anything respecting many of them, as their exact applications are unknown. There is very little doubt that a careful investigation of their properties would amply repay any scientific dyer who would direct his attention to them. Some of these dyes are, no doubt, well known; as indigo, of which fine specimens have been sent by D. Jardine, Esq., from Jessore, and others from Cuddapah. One kind, sent by Mr. Fischer, is interesting, as being the produce of the leaves of a tree (*Wrightia tinctoria*), which differs entirely from the common indigo plant (*Indigofera tinctoria*). Turmeric, safflower, sapan, and myrobolans, and others, are well known.

The different kinds of madder root require to be carefully distinguished with respect to their properties—as, for instance, the munjeet of different parts of India. The *al* and *ach*, as yielded by different species of *Morinda* in Central India, and employed in dyeing the permanent deep

red calico called *khurwa*, which is much worn by water-carriers. Both these are distinct from the *chay* root (*Oldenlandia umbellata*) of the Coromandel Coast. The mangkuda root has been sent from Malacca, Java, and Celebes, to which the old name of the chay root, *Morinda umbellata*, is applied in the lists from Singapore. The different lichens from the Himalayas and Scinde, the roots and herbs, flowers and fruits, from Arrakan and the Indian islands, as well as from different parts of India, all require careful investigation.]

Specimens of indigo, from Babacully, in Jessore, Messrs. M'Nair and Co., and from Joradah factory.—Sent by D. Jardine, Esq., of Calcutta.

Indigo (*Indigofera tinctoria*), from Hart and Simpson's factory, from Arbuthnot's factory, and from Cuddapah market, from Cuddapah and Madras.

Best indigo and Kotah indigo-seed, from Kotah.

Indigo, and other dyes, Rao of Cutch. Indigo is chiefly grown for home consumption.

Pala indigo (*Wrightia tinctoria*), Mr. Fischer, from Salem.

Gaju gum, used in dyeing, from Celebes.

Madder, from Assam, Calcutta, and Aden.

Lichens, from Himalayas and from Sindh.

Mangrove bark, Kaboung, yields chocolate dye, from Arracan.

Myrica bark, from Himalayas.

Bark and wood, Ting nyet, dark purple dye, from Arracan.

Sagah bark, and Samak bark, from Singapore.

Lopisip bark, from Celebes.

Purple flowers used as a dye in Arracan:—

Sapan wood (*Cesalpinia sapan*), from Bengal.

Bulu wood, Bunchong; Mangkudu root? (*Morinda umbellata*) red dyes from Celebes and Java.

Safflower, Kasoomba (*Carthamus tinctorius*) from Assam and Dacca.

Tisso flowers, light red dye (*Butea frondosa*) from Tanna and Bengal. They are used for dyeing a light red colour, a favourite colour for turbans.

Annotto (*Bixa orellana*), from Assam.

Hursinghar flowers, yellow dye (*Nyctanthus arbor tristis*) Rajpootana and Cuttack.

Abutilon striatum? from Assam.

Haradah berry, from Hill tracts of Orissa.

Myrobolans (*Terminalia citrina* and *Terminalia bellerica*), from Moorshedabad, Cuttack and Assam.

Marking nut (*Semecarpus anacardium*), from Assam.

Reroo, hair of fruit of (*Rottlera tinctoria*), from Assam.

Turmeric (*Curcuma longa*), from Assam.

Seeds, root, and powder, prepared for colouring (*Morinda oitirifolia*), from Rajpootana.

Root of Mangkudu (*Morinda umbellata*) from Malacca.

Sapan-wood root (*Cesalpinia sapan*), from Java and Philippine Islands.

Chay root (*Oldenlandia umbellata*), from Tinnivelly, Palamcottah.

Al or ach root (*Morinda tinctoria*), from Rajpootana.

Nutgalls, Danghy hurritocher, and Assokat, from Assam.

Reroo (purple dye), Thit nan weng (chocolate dye), Krit tel and Thee dan (red dye), from Arracan. Kayu kadrang (yellow dye), from Malacca.

Woody (*Calysacion longifolium*), from Bombay. Flowers exported to Bengal for dyeing silk.

Avaraiputta, Saracundraputtah, from Palamcottah.

Usburgh and Ukkul beer (*Datisca cannabina*), yellow dye, from Lahore.

(E.) Tanning Substances.

[The same observation may be made respecting tanning substances that we have made respecting the dyes, that is, judging from the results, the raw materials employed must be possessed of the best qualities as astringents. Some of these are well known as the dif-

ferent kinds of Myrobolans, but which are chiefly employed in dyeing. The *Emblie myrobolans*, which is more astringent, is, however, the product of a very different tree (*Emblie officinalis*) from the others. Gall-nuts are imported, by the Persian Gulf, into India from the same regions which supply Europe. Tamarisk galls are used in some places where they are abundant, as is pomegranate rind. The divi divi is being grown in Bengal, and produced of excellent quality; but a new species of *Casalpinia*, called Teree, from Chittagong, is found to be useful for the same purposes. The bark of *Acacia arabica* is the most frequently employed in most parts of India, but that of *Cassia auriculata* in the Peninsula. Several others require examination. The acacia is abundant in the forests of Scinde, as is the mangrove along the shores of the Indus. Dr. Stocks has proposed the preparation of extracts from these barks, as was some years since done by Dr. Gibson, in order to save the expense of freight for bulky barks, and enable them to come into the market with catechu, terra japonica, and gambir, which are already so well known and extensively employed, and come from as distant parts of the Indian empire. Kino also might be more extensively supplied, as the tree producing it has been discovered in many of the forests of India. The kino of *Butea frondosa* might be used for the same purposes as it is possessed of similar properties.]

Aonla berries, *Emblie Myrobolans* (*Phyllanthus emblica*), from Rajpootana; Marada (*Terminalia alata*); Buhara, Safaed mosslee, Hurrah (*Terminalia bellerica*), from Mirzapore.

Teree (*Casalpinia*), A. Sconce, Esq., from Chittagong. Divi divi (*Casalpinia coriaria*), grown in the Botanic Garden, Calcutta.—Dr. Falconer.

Mangrove bark (*Rhizophora Manglesi*), from Arracan, Malabar, and Singapore.

Babool bark (*Acacia arabica* and *Acacia catechu*, from Madras, Sindh, Shahjehanpore, Rohilkund, and Assam.

Avaraputtai, Tangada jegota (*Cassia auriculata*), from Vizagapatam; Saracondraputtai (*Cassia fistula*), from Madura and Tinnivelly.

Jamoon bark (*Eugenia jambolana*), from Cuttack.

Peal bark, from Cuttack.

Saul tree bark (*Shorea robusta*), from South West Frontier, and Vizagapatam.

Gallnuts, from South-West Frontier.

Pomegranate bark, Daruncka puckl, Dadima segota (*Punica granatum*), Kémaon, Vizagapatam.

Galls of Tamarisk, Sumrut ool Usl (*Tamarix Indica*), from Bombay and Lahore.

Catechu extract (*Acacia catechu*), from Rutnagherry; Kut, from Malabar, Moorshedabad, Calicut.

Kino gum, Vangay (*Pterocarpus marsupium*), from Malabar.

Dhak gum, Choon gond (*Butea frondosa*), from Rajpootana, Cuttack, and Meerut.

Moduja fugutie (*Butea frondosa*), from Vizagapatam.

Gambir (*Uncaria gambir*), from Singapore.

Mochrus (*Bombax malabaricum* and *Bombax heptaphyllum*), from Bengal and Meerut.

(F.) Fibrous Substances.

[Under the head of fibrous substances, cotton is arranged with flax and hemp. It is not, however, of the same structure as these, being considered by botanists to be formed of elongated cells, while the others are formed of true ligneous fibres; but as all are applicable to the purposes of weaving and of rope-making, it is more convenient for practical purposes to treat of them together.

From the enormous extension of cotton manufacture in this country, any increased supply of the raw material from new or from old sources is a subject of paramount

importance, and has hence for some time engaged much of the public attention. The Indian collection exhibits a very large number of specimens from a great extent of territory. But the cotton is of very different degrees of quality and of length of staple. The indigenous cotton of Asia which is met with in commerce seems all to be produced by varieties of one species, the *Gossypium indicum*, often called *G. herbaceum* by botanists; but it is truly herbaceous only in cold climates. The cotton of this when compared with American species is distinguished by the shortness and often by the coarseness of its staple, and this, notwithstanding that the matchless muslins of Dacca, as well as of other districts of India, have for ages been manufactured with it. This is owing partly to the care with which the cotton is selected and prepared by the native weavers, and partly to the delicacy of touch of the Hindoos, which enables them to spin a staple which is too short for machinery. It is probable that some of the cotton grown near Dacca was of finer quality than the rest: at all events it is known that it had one peculiarity, that of not swelling in the process of bleaching, and making it, therefore, suitable for the manufacture of fine muslins, the so-called "webs of woven air," and which were attempted to be depreciated by being called in this country "the shadow of a commodity."

It has been inferred that moisture of climate is essential to the production of good cotton. This is no doubt the case, but it must be combined with a suitable soil, for some of the cottons from Java are as coarse as those from the driest parts of India. Some of the indigenous cottons of India are, however, of sufficient good quality to be suitable for many of our manufactures—as, for instance, the cotton produced in Nagpore and Berar, provinces of Central India; also that of Broach, Surat, Coimbatore, and Tinnivelly, which are districts situated along the coasts of the Bombay and Madras Presidencies. Great complaints are, however, made by the manufacturers of this country, and very justly, that Indian cotton is most frequently sent in so dirty and adulterated a state as to be troublesome and expensive to work up; a lower price is, therefore, given for it, and yet this price has to cover the expenses of carriage and freight of the dirt as well as of the cotton. The cultivator complains of the low prices paid him for his cotton, though he has, in some measure, his own carelessness to blame, though the defects due to him have been greatly aggravated by the systematic adulteration of middlemen. Those practically best acquainted with the cotton districts of India are of opinion that the only hope of amendment depends upon the settlement among the natives of European agents, or upon the appointment of Inspectors.

Numerous attempts have been made to grow cotton from American seeds in India, and though it is often stated that the experiments have usually ended in failures, this is far from having been the case, for the specimens of cotton which were grown on the experimental farms, and have since then been preserved in the India House, and are now exhibited, display all the qualities of good cotton. Plants growing in the neighbourhood of the old farms retain all the characteristics of good cotton; while there is no reason to believe that the expenses of culture were greater in former times than they have proved to be in the late experiments, when good prices have been paid to the actual cultivators, and a handsome profit has been realized on the sale of the cotton in this country. The experiments have failed in some districts apparently from the unsuitableness of climate; but they have succeeded, and the cultivation is progressively increasing in other districts, such

as Candeish, Belgaum, Dharwar, Coimbatore, and Tinnivelly. In the last-mentioned district it is particularly interesting to observe that the cultivation has been taken up by gentlemen from Manchester, though it is generally preferable, because more profitable, to allow the natives to cultivate the cotton, and to agree to purchase it from them when grown. In Candeish, Belgaum, and Dharwar, the culture of American cotton by the natives of India was gradually extending; and it was expected that in the season of 1850-51 about 9,000 bales of Indian-grown American cotton would pass through the station of Dharwar on their way to this country. This cotton can be laid down in Liverpool, all expenses paid, at 3½d., and has frequently sold for 6d. and 6½d. a pound. The whole of the details are given in the author's work "On the Culture and Commerce of Cotton in India and elsewhere." London, 1851.]

Cotton.

Cottons grown in the Experimental Farms of the East India Company from the year 1818 to 1850—India House. Indigenous cottons, from Madras Presidency, Dacca, Agra, Jullundur Doab.

Raw cotton with seed, and after the seed has been extracted, from Gwalior.

Cotton unpicked, from Rajpootana.

Cotton, from Broach, Khandeish, Belgaum, and Dharwar.

Cotton, New Orleans. This is grown in the Belgaum Collectorate. The price mentioned, viz., 12 annas per maund, is the entire cost growing, &c., and ginning.

Cotton (country). This is grown in the Belgaum Collectorate. The price is 10 annas per maund.

The following is a statement of the cultivation of cotton in the Dharwar and Belgaum Collectorates for the year 1849-50:—

Dharwar Collectorate.

	Cultivation in 1849-50.	Yielding about Candies of 784 lbs. each.
Country cotton . . .	225,685	18,135
New Orleans . . .	15,573	1,557
	241,258	19,692

Belgaum Collectorate.

	Cultivation in 1849-50.	Yielding about Candies of 784 lbs. each.
Country cotton . . .	145,216	10,000
New Orleans . . .	3,058	180
	148,274	10,180

Of this cotton one-quarter is kept in this country for native manufactures, and three-quarters exported to Great Britain.—Bombay Report.

Cotton wool, from Rao of Cutch. This is a small specimen of the Cutch cotton, which is grown in small quantities for home consumption only.

Ladom and Oopum, two indigenous cottons, Bourbon, and Nankeen cotton, from Salem.—G. F. Fischer, Esq.

Cotton pods from American seed, from Madras.

Mexican or New Orleans cotton from Government Farm, cleaned by saw gin, from Coimbatore.—Dr. Wight.

Oopum, or native Indian cotton, cleaned by American saw gin, from Coimbatore.—Dr. Wight.

Raw cotton and cottons for spinning yarns, from Assam and Moulemein.

Raw cotton (*Gossypium herbaceum*) from Palembang, Sumatra.

Cotton grown as second crop on rice land, cleaned and uncleaned; upland variety, grown both as annual and perennial, cleaned and uncleaned, from Java.

Cotton, from Pernambuco seed, grown at Sarawak, in Borneo.

Fishing lines of cotton, from Calicut.

Ropes made of cotton (*Gossypium herbaceum*), from Coimbatore and Bellary.

Cotton twist, from Palembang, Sumatra, Celebes, Java.

(G.) Fibres.

[The production of fibres fit for weaving into cloth and for rope-making is hardly of less importance than that of cotton; and India abounds in so great a variety of them, as is evident even from the collection exhibited, that there is hardly a want that might not be supplied from thence. It is curious, though India abounds in both the hemp and the flax plant, that neither are cultivated there on account of the fibre for which they are so much valued in Europe. The flax plant may, however, be seen forming an edging to many fields of corn, being cultivated on account of its seed (linseed), which is now both exported and oil expressed from it, while the stalks are thrown away, though flax has been prepared from them of good quality at Manghyr, &c. The hemp in the plains of India is cultivated solely on account of its intoxicating properties (see Class III. (D.), p. 873). But in the Himalayan mountains, where the climate is more suitable, strong rope and canvas are prepared from the fibre, which the difficulties of access alone prevent at present from becoming extensive articles of commerce. But for these India possesses a vast number of substitutes, some of which may yet come to rival them in the commerce of the world, from the extent of their useful properties. It is curious that to one of these a name is applied which would seem to be the original of our English word hemp, and which is itself derived from *hauf* and *hennip*. *Crotolaria juncea*, which in habit somewhat resembles Spanish broom, is cultivated in most parts of India for its fibre, which is used for the same purposes as hemp, and is called *sun* and *sunnee* in different parts of India, but, in the Madras peninsula, *janapum*. It is a useful substitute for hemp, but usually inferior in strength to what is called brown Indian hemp, the produce of *Hibiscus cannabinus*, also called *sun* in Western India, but *Ambaree* at Bombay. Several other species of *Hibiscus*, though not extensively cultivated, are similarly useful, as well as others of the same natural family. *Eschynomene cannabina*, or the *dancha* of Bengal, is similarly used; but the species and varieties of *jute* or *pat* have become the most extensive articles of export, not on account of the strength, but from the length, fineness, and great cheapness of the fibre. It is used for making the common kinds of lines and floor-cloths, but also, it is believed, of late years, for mixing with other substances in the manufacture of different fabrics. The chemical means which are now adopted for improving the appearance of many of these fabrics, has made that of jute applicable to many purposes of furniture. Another group of these fibres is yielded by what are sometimes called liliaceous plants, such as the agave, or great aloe, as it is sometimes called, the Yucca, the Sansevieria, the pine-apple, and even the plantain—of all of which a variety of specimens have been sent from the southern parts of India and the islands of the Indian Ocean. Some of these have already been applied to useful purposes, and specimens of the twine and rope made with them have been sent by several individuals; but in great variety by Dr. Hunter, of Madras, who has also shown that many of them are able to take a variety of colours. Some fine fabrics have already been made with the fibre of the pine-apple, plantain, and Sansevieria: all of them might be employed for making paper. The plantain is especially abundant, being grown in every village on account of its fruit, and its stems are applied to no use.

Some of the palms also yield fibres useful for rope and mat making, as the coir obtained from the husk of the cocoa nut, the Ejoo or black Gummuti fibre obtained from *Arenga saccharifera*, also that of the Palmyra and of the *Chamærops* of Beloochistan.

But the most remarkable, and what will probably become the most useful, are the fibres of two plants which were formerly placed in the genus *Urtica*, or nettle, but are now referred to the nearly allied *Boehmeria*. One of these is particularly interesting as being very closely allied to if not identical with the far-famed China grass. This plant has been known for many years, as it was one of those which was subjected to experiment by the late Dr. Roxburgh, when public attention was turned, in the year 1803, to India for a supply of materials for canvas, cotton, and cordage. The author of this note observed in the year 1836, with respect to this plant and Dr. Roxburgh's observations—"It is interesting to find in the same family with the hemp, the *Urtica tenacissima*, or *Caloe* of Marsden, *Rami* of the Malays, a native of Sumatra, also of Rungpore, where it is called *Kunkhara*, and which Dr. Roxburgh found one of the strongest of all the vegetable fibres, which he subjected to experiment. Average weight, with which lines made of the different substances broke were, *Asclepias tenacissima*, *Jetee* of the Rajmahl mountaineers, 248; *Urtica tenacissima* *Callooe*, 240. The strongest Sunn, *Crotolaria juncea*, 160. Hemp, *Cannabis sativa*, grown in the year 1800, in the Company's hemp farm near Calcutta, 158, but much stronger when tanned. Europe hemp, however, was always found stronger than Sunn, though not more so than the others. Dr. Roxburgh speaks of the beauty, fineness, and softness of the fibre of this plant, and says he learnt from a friend resident at Canton that the grass-cloth of China is made of this material. It is cultivated in Sumatra for the fibres of its bark. The Malays use it for sewing-thread and twine, and for making fishing-nets. It is as readily cultivated as the willow from cuttings, grows luxuriantly in the northern as in the southern parts of India, throws up numerous shoots as soon as they are cut down, which may be done about five times a-year. Dr. Roxburgh, however, found some difficulty in cleaning the fibres of this plant, notwithstanding his anxious desire to succeed with this substitute for both hemp and flax. *Urtica heterophylla* is another Indian nettle, which succeeds well in every part, and of which the bark abounds in fine white, glossy, silk-like strong fibres (Roxburgh). The stinging properties of the nettle are well known, but they are all exceeded by the last-mentioned plant, as well as by *U. crenulata* and *stimulans*."—*Illustrations of Himalayan Botany*, p. 334.

In the year 1811 the Court of Directors of the East India Company imported three bales of the *Caloe* hemp which had been cultivated in the Botanic Garden at Calcutta by Dr. Buchanan, who was of opinion that the plant was identical with the *Urtica nivea* of Willdenow. The Court ordered one bale to be sent to Messrs. George Sharpe and Sons, who reported, on the 4th February 1812, that having brought the *Caloe* plant to the state of hemp for the use of cordage, a thread was spun of the size of those spun in the king's rope-yards, which bore 252 lbs., whereas the weight required to be borne in his Majesty's yards by Russian hemp of the same size is only 84 lbs. A letter from Mr. Lee, of the Society of Arts, dated 14th June 1845, stated that when the article is cleaned it is strong, soft, and free. Under proper management, the fibre of this plant would be of more value than the best Russian hemp for most of the purposes for which hemp is

used, and it may be made so fine as for many uses to answer the purposes of flax.

Dr. Buchanan mentions that the plant is cultivated in the district of Dinagepore and Rungpore; and in the year 1833, and again in 1836, Major (then Captain) Jenkins, the zealous Superintendent of Assam, called the attention of the Agricultural Society of India to the valuable fibre of the *Rheea* of Assam or *Urtica nivea*; and now we have several of the officers who are placed under Major Jenkins sending specimens of this *Rheea* from different parts of Assam.

We have seen that Dr. Roxburgh had been told that the grass-cloth of China was made of this material. The truth of this statement, however, was doubted, as other plants have also been stated to be those employed, as the plantain, pine-apple, *Corchorus*, *Sida tiliaefolia*, and even the hemp itself. The discussion having been revived of late years, one of the educated Chinese employed in the tea culture in Assam, stated that the nettle-like plant growing in Assam was like that which afforded the material for making grass-cloth in China. The Agricultural Society of India, in the year 1847, addressed Dr. Macgowan, then stationed at Ningpo, to make inquiries on the subject. Dr. M. writes that grass-cloth is manufactured from a plant called *Chu ma* by the Chinese, and which he supposes may be a species of *Cannabis*; but Dr. Falconer rightly observes that the description given by Dr. M. is entirely that of the species of *Boehmeria* (formerly *Urtica*), called *B. nivea*, or *tenacissima*, by botanists, or of a newly-allied species. Some specimens which were subsequently received confirmed Dr. Falconer's opinion, that the *Chu ma* is the same plant as the *Boehmeria nivea* of botanists. It may be stated that the specimens, though imperfect, of the China grass-cloth plant in the Exhibition closely resemble, though they do differ a little in the appearance of the bark from the pieces of the Assam plant in the Indian collection. It is important to state that, for all practical purposes, Mr. Sangster considers the produce of the two plants as being identical. The Indian plant is found abundantly in Assam and Cachar, in the Shan country, and in Ava, and in the Tennesserim provinces, besides in the other above-mentioned localities. Hence there is an abundant supply of a very valuable material, which may shortly become an important article of commerce, by the adoption of suitable measures for the culture of the plant, and for facilitating the separation of its fibres.

Another species of *Urtica*, the *U. heterophylla*, is hardly less important, from the appearance, softness, and strength of its fibre, but it is probably not so abundant. Dr. Wright particularly calls attention to its fibre, as well as to that of the *Yercum*, or *Calotropis gigantea*, which belongs to the same natural family as the *Jetee* or *Asclepias tenacissima* of Roxburgh. The whole Indian series would afford a fruitful source for experiment and interesting observation, tending greatly to increase our supply of fibre, and to develop the resources of the country in which they are so abundantly produced.]

Hemp, Flax, Pine-apple, Plantain, Nettle Fibre, &c.

Hemp, true (*Cannabis sativa*), with twine and canvas, from Kémaon and the Himalayas generally.

Flax, from Monghyr.

Fibre, hemp, and cordage, Dunchai (*Eschynomene cannabina*), contributed by Messrs. Thompson, manufacturers, from Calcutta.

Plantain fibre of the Philippine Isles (*Musa textilis*), cultivated by Dr. Roxburgh, near Calcutta.

Plantain fibre, from Dacca.

Fibre of plantain stem (*Musa paradisaica*), from Singapore.

Plantain fibre (*Musa paradisaica*); plantain fibres, dyed orange, green, and red: oakum, or tow, of plantain stalks; rope from fibres of plantain stems; strong thread, whip and line plait, from plantain stems; tarred rope, made from plantain fibres, Dr. Hunter, from Madras.

Pine-apple fibre, prepared for weaving, from Assam.

Pine-apple fibre and twine, from Singapore.

Pine-apple fibre, from Celebes and Java.

Flax from pine-apple, from Calcutta.

Fibres of pine-apple (*Ananas*), from Travancore.

Fibres and oakum of pine-apple, from Madras.

Sansevieria zeylanica, Morgahee, grown in the division of Cuttack, and used for bowstrings. The hemp therefrom is prepared by scraping each leaf, when in fresh water, with a knife, and separating the fibres from the vegetable substance. The preparation admits of no other process without impairing the strength of the fibre.

Bowstring hemp, fibres of (*Sansevieria zeylanica*), from Cuttack and Malabar.

Fibres and oakum of marool (*Sansevieria zeylanica*); fibres of marool, dyed orange, red, maroon, and green, from Dr. Hunter, of Madras, and from Coimbatore.

Ropes and fibres of marool, from Madras and Coimbatore.

Rope, made of fibre of aloe (*Agave americana*), from Coimbatore.

Fibres and oakum of large aloe, dyed orange, red, maroon, and green; Whipcord, from large aloe, from Madras.

Fibres of the aloe; Agave. Cordage made from the aloe, from Madras.

Fibre of the small aloe (*Agave? vel Aloe?*), orange, red and crimson.

Rope made from the fibres of wild aloe, from Madras.

Fibres of the small or garden aloe; *Sansevieria*. Fibres made into oakum of the small or garden aloe; from Madras.

Fibres and oakum of small species of *Yucca*, from Madras.

Flax, so called, but is the produce of *Boehmeria candicans*, a plant nearly allied to that yielding China grass, first and second quality, dressed, from Java.

Nettle fibre in various stages, *Talli rami*, from Singapore.

Fibres of Neigherry nettle (*Urtica heterophylla*), sent by Dr. Wight, from Neigherries.

Caloce hemp (*Urtica tenacissima*), grown by Dr. Roxburgh, nearly fifty years ago, near Calcutta.

Rhea fibre (*Urtica tenacissima*), from Rungpore in district Moorshedabad, and from Major Jenkins and other officers in Assam.

Fibre of *Urtica vel Boehmeria nivea?* or China grass, imported by Mr. W. Sangster, of Cheapside, from Assam.

Sun, Jute, and other Tropical Substitutes for Hemp and Flax.

Fibre of *Sun*, or *Crotolaria juncea*, from Calcutta.

Thin rope of fibres of *Janapum (Crotolaria juncea)*, from Coimbatore.

Suffed and lal monty pat (*Corchorus olitorius*), from Rungpore in district Moorshedabad.

Two other varieties of *Jute*, or *Corchorus olitorius*, from Bengal.

Theng-ban-shaw, Pa-tha-you-shaw, Shaw-phyoo, Ngantounghor. Specimens of raw materials and rope made therefrom; from Arracan.

Shau-nu, ee-gywot-shaw, from Arracan.

Brown Indian hemp, Ambari and Sun (*Hibiscus cannabinus*), Dr. Gibson, Bombay.

Thick rope of Palungeo (*Hibiscus cannabinus*) from Coimbatore.

Fibre of *Hibiscus strictus* and *Sabdariffa*, grown by Dr. Roxburgh.

Areah lota, Maranhoree lota, Moonga lota; bright fibre hemp for making rope, from Assam.—Major Hannay, Baboo Demanath, and Lakenath.

Bark string and ropes Putwa (*Bauhinia racemosa*) from Bhagulpore.

Fibre, Tongoose (*Asclepias tenacissima*), from Madras. Fibres of bark of yercum (*Calotropis gigantea*), from Madras.

Fibre of a species of *Urena?* from Calcutta.

Fibre of Parkinsonia stalks (*Parkinsonia aculeata*), from Madras.

Pulas cordage (*Butea frondosa*). Bhabooree, a grass rope. Chehoor, a forest tree. Patoo, or Asta cordage. Beerbhoom.

Bark of Trap tree (*Artocarpus*), from Singapore.

Thread for making cloth; Mazankoree thread; Reah fibre and thread; Pat thread; Reha fibre; from Assam.

Bark of the Sasa tree; of Roxburghia, and of *Artocarpus*, from Assam.—Captain Reynolds and Mr. Simons.

Coir rope from cocoa-nut husk (*Cocos nucifera*), from Calicut in Malabar.

Ejow or Gummuti fibre. The hairy outer covering of *Arenga saccharifera*, or Gummuti Palm (see Griffith's Palms of British India), as collected from the tree. This fibre is much esteemed for making ropes, especially cables, for which purpose it is peculiarly adapted from not being liable to injury if stowed away below when wet with salt water. Ditto, separated from the stiff fibres. Ditto, prepared for manufacture or exportation. Ditto, prepared as sennit or coarse line for making ropes or cables.

Fibres of Palmyra leaf (*Borassus flabelliformis*), from Madras.

Fibre of *Chamerops Ritchiana*, from Beloochistan.—Dr. Stocks.

Gogoo rope, from Cuddapah.

Wackanoor fibres, from Travancore.

Bow strings of fibres, from Wynnad and Calicut.

(Ga.) Cellular Substances.

Pith-like stem of *Eschynomone aspera*, formerly *Hedyosarum lagomarium (Shola)*, common in wet and marshy parts of India.

Solah, from the vicinity of Calcutta. The natives make hats, caps, bottle and glass covers, life-preservers, and toys of it.

Inner bark of the Himalayan birch (*Betula bhajputtra*), Himalayas.

(H.)—Timber and Fancy Woods used for Construction and for Ornament.

A collection of 117 specimens of Indian and a few Ceylon woods made up into the form of books by the late Dr. Roxburgh. The Tamul names are written upon many of the specimens. Mr. Wilson Saunders has added greatly to the value of this collection, and the two following, by having ascertained the specific gravity of all the principal woods, and made notes on the working qualities of many of them.

A collection of 51 of the principal woods, chiefly from the Bengal Presidency and Himalayan Mountains, in good-sized specimens, sent to the East India House by Dr. Roxburgh and Wallich. The properties of the greater number of the principal Indian woods have been detailed by Dr. Roxburgh, in his "Flora Indica" and in his "Coromandel Plants."

The following are the botanical names of the trees yielding these woods:—

Quercus lappacea, lanceifolia, and fenestrata.

Castanea indica. *Corylus lacera?*

Taxus nucifera. *Prunus puddum*.

Juglans regia. *Juglans pterococca*.

Artocarpus Chaplasha. *Cedrela toona*.

Terminalia citrina. *Terminalia chebula*.

Odina Wodier. *Cynometra polyandra*.

Diospyros racemosa. *Sophora robusta*.

Gmelina arborea. *Nerium tinctorum*.

Tetranthera nitida. *Phyllanthus longifolius*.

Swietenia febrifuga. *Lagerstræmia Reginae*.

Vateria lanceifolia. *Osyris peltata*.

Santalum album. *Olea fragrans*.

Scytalia Longan. *Scytalia trijuga*.

Mespilus japonica. *Averrhoa Carambola*.

Acer laevigatum. *Elæagnus spec.*

Eugenia spec. *Rhododendron arboreum*.

Mimosa odoratissima. *Cassia sumatrana*.

Rhizophora odoratissima. *Andrachne apetal.*

Dombeya melanoxylon. St. Helena ebony.

Selections from a collection of 457 woods of timber trees and shrubs from the Bengal Presidency and its eastern frontier, sent by Dr. Wallich to the India House. A duplicate collection was given to the Society of Arts, and is enumerated in the Transactions of the Society. Vol. XLVIII., part ii., pp. 439 to 479. 1831.

A collection of 15 cups, turned out of Indian and Himalayan woods, sent by Dr. Wallich to the India House.

Mahogany wood (*Hamaterylum campechianum*), grown in the East India Company's Botanic Garden, near Calcutta, and a tea-caddy made out of it.

A collection of cubes of Teak wood, with their specific gravities, from the Marine Department in the India House.

A collection of 262 specimens, with their weights and principal properties, from Tinnivelly, Travancore, Paulghaut, North and South Canara, with some from Penang, forwarded by Colonel Frith to Lieutenant-Colonel Bonner, Military Storekeeper, East India House.

Specimens of the deodar wood (*Cedrus deodara*) of the Himalayas, and of the cypress (*Cupressus torulosa*) of the Himalayas. J. F. Royle, M.D. These are exhibited, because so many landed proprietors have planted the hardy deodar on their estates, and it is likely to become a valuable timber tree. The cypress is less hardy.

Teak, marked S T. This specimen, from the forests of Soonda, in the Madras territories, is sent for comparison with the Northern or Surat teak, which is grown in a drier country and a more stubborn soil. Price varies from 9 rupees to 22 rupees per 20 cubic feet when brought to the coast.

Teak, marked N T. This is the Surat teak just mentioned: it is said to be much harder and more durable teak than that from either Malabar, Canara, or Moulmein.

Kao wood. This grows in the hills near Kurachee, and more abundantly on the Belovat Hills to the northward. A round box turned out of it. This has been ascertained, by Dr. Stocks, to be a species of olea or olive, of which he has sent specimens to Dr. Royle. It is used in Scinde for making combs; Dr. S. thinks it might be useful for wood engraving.

Specimens of wood of the following trees, growing in the districts of Bareilly and Pilibet, in the Rohilcund division:—*Phyllanthus Emblica*. *Melia azadirachta*. *Cedrela*. *Shorea robusta*, two specimens. *Mimosa serissa*. *Calyptranthes*, sp. *Dalbergia sissoo*. *Acacia Arabica*. *Acacia catechu*. *Nauclaea cordifolia*. Mulberry. *Bassia latifolia*. *Bombax heptaphyllum*. *Nauclaea parvifolia*. *Wrightia mollissima*. Plum. *Grewia*. Rohunee? Chow-lae? Urseina? Goshum? Khumar?

Grown in the district of Mirzapore:—*Bijcedar dipterocarpus* (bijcedar). *Asun Pentaptera glabra*. *Abnoos Diospyros* (ebony). *Sukooa Conocarpus* spec. *Terminalia bellerica*. *Terminalia sufed mooslee*. *Terminalia hurrah*. *Phyllanthus emblica*.

Specimens of wood of the following trees, grown in the late Dr. Carey's Botanic Garden at Serampore, near Calcutta:—*Eugenia polypetala*. *Robinia macrophylla*. *Dalbergia latifolia*. *Mimusops hexandra*. *Cinchona gratiissima*. *Diospyros sapota*. *Diospyros montana*. *Dillenia pentagyna*. *Dalbergia ougeinensis*. *Careya sphaerica*. *Gmelina arborea*. *Erythrina ovalifolia*. *Nageia Putranjiva*. *Dalbergia* sp.?

Timber, growth of the Tennesseerim provinces:—*Sassafras* wood, sp. of *Laurus*. Mountain erythrina. *Sterculia fetida*. Mountain ebony, spec. of *Bauhinia*. Mergui red wood. Mergui black wood, *Dalbergia latifolia*. Tavoy lancewood, one of the Apocynæ. *Fagraea fragrans*. *Pinus Latteri*. *Tectona grandis*. *Ingaxylcarpa*. *Careya arborea*. Four specimens of *Diospyros*. *Heretaria minor*. *Vitex arborea*. Species of *Grewia*, Rosewood, Thanaka, and Wild Sandal-wood. Jarool, *Lagerstromia Regineæ*. *Hopea odorata*. *Pterocarpus Wallichii*. *Calophyllum*.

Nine specimens of timber from Bhagulpore, in the division of Patna.

Grown in the province of Chittagong, and supplied by Captain Marquard:—*Goorgetiah*, or *Dactylocarpus*. *Butlenah*, or *Conocarpus*. *Kalee bale*, or *Diospyros melanoxylon*. *Melanoxylum*, black ebony. *Koom Koyre*. *Acacia* spec. *Chukrasse*, *Chickrassia tabularia*.

Grown in the neighbourhood of Calcutta:—Specimens of *Adenanthera pavonina* and *Santalum album*. Wood and plank.

Grown in Assam, and sent by Major Hannay:—*Top sopa*. *Laurus sassafras*, *Goondsoora*. *Terminalia*, *Bhota*. *Hindoo*, *Palm Toan*. *Oak*, *Hingoree*.

Timbers grown in the forests of Assam, and received, under their local names, from Mr. Martin:—*Saul*, *Poma*, *Cattul*, *Ratta*, *Babul*, *Nahoo*, *Sullock*, *Korai*, *Agar*, and *Cham*.

Nadosur, contributed by Captain Reid.

Timbers grown in the province of Arrakan:—*Moo-tso-ma*, *Bhaman*, *Parawa*, *Tuwot*, *Thenganet*, *Kyaudevet*, *Teing*, *Tswanhyc*; *Pyaing*, two specimens; *Theratsing*, *Pyawa Tulli*, *Therock*, *Pyanany Thekuddo*, *Tuwot*.

The following specimens of woods were received from Mr. Blundell, Commissioner of the Tennesseerim Provinces, in 1835, under the native names here given. They remained from that period to 1847, being twelve years, exposed to the destructive influence of white ants, &c., when, at the expiration of that time, they were reported on by the then Officiating Superintendent of the Honourable Company's Botanic Garden, in October 1847, as follows:—

TIMBER from the PROVINCE of AMHERST.

Povin-gnyet. Used for house posts and rafters. It is a kind of Jarool, a good serviceable wood, and would do for piles, posts, and beams.

Tshiet-Khyeen. Used for house posts. A superior kind of crooked-grained Saul.

Eng-gyeng. Also used for posts of religious buildings. A useful wood, but subject to split.

Gan-gan. A very strong, tough, hard, crooked-grained, fibrous, red wood, which would do for machinery or any purpose requiring the above properties.

Myeng-kha. A useful wood, like *Babool*. *Acacia arabica*.

Ma-thloa. Used for house posts; probably *Artocarpus integrifolius*, or Jack-wood.

Bhai-bya. Ditto. White Jarool.

Meet-gnyoo, fruit-tree. It is a red-coloured, useful, strong, heavy wood, probably a species of *Mimosa*.

Naoo. Used for house posts; the leaves, flowers, and roots are said to be used for medicine. It is a brown, substantial, solid wood, not liable to the attacks of insects.

Zee-byion. This is a compact, close wood, like *Lagerstroemia*, or white Jarool. It is used for house posts, and is liable to split, but is free from the destructive influence of insects.

Pyeen-ma. House posts, carts, boats, paddles, oars, &c., are made from this, which is a capital wood, a kind of Saul, and would answer for all the purposes of common Saul.

Kya-zoo. This is a very heavy wood, like Saul.

Maza-neng. This is a close-grained wood, nearly allied to Teak. It is used for house posts, carts, boats, paddles, oars, &c.

La-phan. A heavy, solid, large-sized timber, but rather liable to injury from a peculiar insect, not white ants.

Nyaung-lan. Saul, of a peculiar kind, employed for beams, rafters, and boat-building. The root is used as umbrella stocks.

Kywon-gaung-noay. A close, heavy, compact, tough, yellowish-white wood, of which house posts and rafters, &c., are made.

Ban-boay. It is a strong and useful wood, a kind of *Mimosa*, employed as house posts.

Moma-kha. Employed for gun-stocks; it is a reddish,

softish wood, close and compact, fit for turning purposes, and exempt from attacks of insects.

Tha-byion. A useful timber, probably *Eugenia*.

Tha-khwot. This wood is used for sandals; it is a kind of white Teak.

Tha-bwot gye. This is a good heavy valuable timber, somewhat like iron-wood.

Theng-gan. Employed for house posts, carts, boat-buildings, paddles, and oars. It is an excellent compact wood, fit for gun carriages.

Taup-sha. Employed for house posts, and would answer for common carpentry, but it is subject to split; the bark is supposed to be medicinal.

Kiep-maup. Employed for cart-wheel spokes. Superior wood, free from attacks of insects; the tree is said to have an edible fruit.

Yoga-theet. The wood is used for carved images, and the bark used as soap.

Kiep-yo. A heavy, good wood, but small, used for house posts and rafters.

Thiem. Used as house posts, rafters, and general purposes of carpentry.

Myaun-ngo. White Sissoo, used for rafters.

Myaup-loat. Cedrela, a kind of superior Toon.

Eng. Wood used for boat-building, and produces oil. It is a strong, heavy, useful, grey wood, suited for beams, piles, and the like.

Nga-soay. This is a solid, very heavy, reddish wood, and answers for house posts and rafters.

Tan-labet. A heavy, white wood, employed for house posts and other common purposes. It is not liable to injury from insects.

Koup-ha. This is a light, soft wood, not subject to injury from insects. It is probably *Nauclea cadamba*, and is employed for carved images.

Zeng-bywom. Employed for house posts. It is a useful wood, equal to Jarrool.

Anan. Used for constructing temples. It is a yellowish-white, heavy wood.

Yammandy. Used for carving images and making drums. It is a useful and valuable wood.

Ban-kha. Used for house posts, and other common purposes. It is a peculiar kind of wood, colour grey.

Seet-seen. Used for the construction of religious houses. It is a red, compact, very ponderous, and highly valuable wood.

Teng-khat. This is a heavy white wood, solid, and fit for turning purposes; used for rice-pounders, &c.

Tha-nat. It is a kind of grey Teak.

Kyway-thoay. Is a strong, solid wood; probably will prove to be a kind of *Acacia*. Used for house posts and rafters.

Mya-ya. Hard and close-grained wood, used for rafters; it is strong and durable, and would answer for beams, &c., being exempt from the attacks of insects.

Tawot-ba-lwot. This is said to be a fruit tree; the wood resembles Jarrool.

Bijion. This is used for house posts, rafters, and the like purposes; it is a heavy, compact, grey, close-grained wood.

Theet-to. This is said to be a fruit tree; the wood is employed in boat-building, making carts, &c.; it is a dark-brownish grey, hard, heavy wood.

Oun-thuay. A white soft wood, not subject to injury from insects; it is employed for common carpentry.

Kya-nan. This is a most hard, close-grained, ebenaceous wood, of dark red colour, used for house posts, musket-stocks, and spear-handles.

Than-kya. The fruit of this tree is employed for ring-worm. The wood is like Saul.

Meng-ba. Used for house posts and rafters. The wood looks like a kind of Saul, and would answer all the purposes of that wood.

Theet-ya. Employed for rice-grinders or pounders. It is a superior, compact, close, tough, brown wood, fit for anything requiring great strength and durability.

Ka-theet-nee. Employed for house posts, boats, and

carts. It is a heavy, hard, grey wood, rather liable to injury from insects.

Na-kyeen. Employed for house posts and rafters. This is the Sundrie wood Calcutta (*Heritiera minor*), where it is so common as to serve for fire-wood, although from its superior qualities for buggy-shafts, hackery or cart axes and wheels, and other purposes requiring great strength and toughness, it is highly prized.

Tooy-dan. Heavy, hard, tough wood, not subject to insects, and, being tough and short, it is suited for wheels, musket-stocks, &c.

Pa-ra-wa. A hard, red, compact wood, with large fibre, and fit for gun-carriages or other similar purposes. It is exempt from attacks of insects. It is used for spears and arrows.

Tahan-tshay. A useful wood, but liable to attacks of insects, and to split.

Pinnai. This is said to be a fruit tree; the wood affords a yellow dye, and is a compact, handsome, yellow wood, suitable for common cabinet purposes. It is probably an *Artocarpus*.

Pad-dan. Used for making drums and musical instruments. It is a kind of red Sander's wood.

Tshaup-yo. Used for house posts and musket stocks. It is a heavy white wood, exceedingly strong, but liable to attacks of insects.

Toung-bien. Used in boat-building and for making carts. It is a strong, heavy wood, well adapted for handles of tools, &c.; it is probably a kind of Teak.

Kywon. A kind of Teak wood.

Daup-yat. Employed for rafters; it is a beautiful yellowish-white compact wood, but has a tendency to split. The leaves are used as a dye.

Dien-neeung. Used for rice-pounders; it is a close-grained, strong, compact, brown, hard wood.

Tseet. Employed as house posts and in boat-building. Saul of small calibre.

Theet-phyion. This is used for fan-handles; it is a useful white wood, and would answer for common carpentry; it resembles *Mimosa sericea*.

Thab-ban. This is used for boat-building and making carts; it is a kind of Teak, but rather heavier than the usual kind.

Kywon-bo. This is used for house posts, rafters, and oars; it is probably a sort of Teak.

Bep-than. Used for making handles for spears and swords; it is a superior wood, and looks like white Jarrool.

Lammay. Used for house posts; it is a red, light, but useful timber, like Sandal-wood, and is free from attacks of insects.

Kiep-dep, ditto, a kind of Saul.

Bhyeng-teeng. This is a close-grained, compact, grey wood, fit for general purposes, and seems to be exempt from attacks of insects.

Tshwai-lwai. Used for musket stocks and sword sheaths; it is a hard, red, crooked-grained wood, fit for cabinet work.

Liep-yo. Used for making carpenters' tools; it is a very compact and heavy, but small-sized timber.

Peng-lay-oun. Used for spear handles; it is a most valuable wood, compact, homogeneous, and very heavy, of a deep brown colour and fine grain, having no tendency to split, and being exempt from attacks of insects.

Raung-thmoo. Used for house posts; it is a kind of Teak.

Thammai. A strong, handsome wood, like *Ægiceras*, or box-wood.

Thep-yeng. Said to be a fruit tree; the trunk affords a compact, fine-grained wood.

Toung-tba-khwa. This is a capital wood for any purpose, gun-carriages or gun-stocks.

Mala-ka. This is used for gun-stocks and carpenters' tools; it is a close, compact, but small-sized wood, fit for hand-spikes, wheel-spokes, and the like.

Toung-tha-byiou. Used for house posts; it is a strong, red, heavy wood, a kind of *Mimosa*.

Yetha-byay. This is used for house posts and boat-building; it is a strong wood, suited for door-frames and common carpentry.

Thanna-dan. Said to be a fruit tree; it is a reddish-brown, heavy wood, fit for machinery or other purpose requiring great strength; it is totally exempt from attacks of insects, but somewhat liable to split.

Than-that. Used for stocks of various instruments; it is a capital wood, and seems to be a kind of Saul.

Gyo. Used for house posts, ploughs, hand-spikes, &c.; it is a close-grained, compact, fine wood.

Yeng-taip. It is a strong useful wood for posts and common carpentry.

Lep-dwat. Used for spear-handles and sword-sheaths; it is a fine-grained, white wood, fit for turning purposes and picture-frames; it is probably the same kind of *Nauclea* which is used for similar purposes in Bengal.

Tsekka-down. This is said to be a fruit tree; the wood is used for house posts, rafters, and boat-building; it is like Teak, but much disposed to split.

Lien. Used for house posts and rafters. It is a most valuable compact wood, homogeneous and very heavy, of deep-brown colour and fine grain, and also exempt from attacks of insects.

Moutha-ma. Bark used for blue dye, a fine-grained, compact, red wood, but liable to split; it would answer for hand-spikes. It resembles *Myrtus pimentas*.

Pa-ngan. Used for boats and oars; it is a compact white wood, and is also in use for making musical instruments. It seems to be *Gmelina arborea*.

Toung-than-gyee. A hard, compact wood of dark-brown colour.

Kha-boung. A strong wood but small, as strong as oak. The fruit is said to be used for rubbing on buffaloes to keep off flies.

TAVOY SPECIMENS OF TIMBER.

Kywon-bo. Bastard teak. A soft wood like *Nauclea*.

Kywon-ma. A variety of the above.

Thingan-kyaup. Employed in boat, ship, and house building, for carts, &c.; it is a close-grained, heavy, strong wood.

Kadwot-nee. Used for boat, ship, and house building. It seems to be a kind of *Cedrela* or *Toon*.

Kaung-thmoo-yoep-say. Ditto ditto. A rough strong wood, used for posts and carpentry.

Toung-bhien. Ditto ditto. Light porous wood like Jarrool, used besides for doors and common or inferior carpentry.

Miaup-bout. Ditto ditto. Answers as *Toon* wood for furniture and other purposes.

Tha-bhan. Ditto ditto, and for making canoes.

Takep-nee. Ditto ditto ditto. Very strong, close-grained, heavy, light-coloured wood.

Ka-nyeng-kyauing-khyay. This is likewise used for boat, ship, and house building, carts, &c. It appears to be red *Jarrool*, yields an oil, and is exempt from attacks of insects.

Ka-nyeng-pyan. Ditto ditto. Heavy grey wood used for hand-spikes.

Ka-nyeng-kyauing-khyay. Ditto ditto. Strong heavy wood rather disposed to split. It would answer for beams and sleepers.

Anan. Used for boat building, house posts, and plank-ing. A small tree.

Mee-kyauing-kyay. Ditto ditto. A heavy wood exempt from attacks of insects, and might be employed for door frames and strong carpentry purposes.

Peng-lay-byeen. Ditto ditto. Small tough wood, might be used for hand-spikes and spear-handles if sufficiently free from knots.

Kyay-tsay-gyee-khyay. Ditto ditto. A heavy compact dark wood like walnut, and would do for gun stocks.

Kyay-tsay-bayoun. Ditto ditto. Useful for common carpentry, like *Terminalia chebula*.

Pauthet-ya. Ditto ditto. A good white-coloured wood, rough, and fit for boat building.

Theet-ya-nee. Used for boat building, house posts, and planking. Close-grained brown wood, subject to split, but would answer for hand-spikes.

Theet-ya-pyiou. Ditto ditto. Heavy strong wood, probably a kind of Jarrool.

Pyeng-khado. Ditto ditto. Small-sized, close-grained, and heavy red wood, would answer for hand-spikes, and if the trees are large, for better purposes.

Khamoung-nee. Ditto ditto. Heavy wood, exempt from the attacks of insects; it would answer for general carpentry purposes.

Khamoung-pyiou. Ditto ditto. Small-sized, light, but compact yellowish grey wood.

Kharaway-nee. Ditto ditto. Porous, but rather heavy strong wood, not liable to injury from insects.

Theet-ta-gyee. Ditto ditto. Would answer for door-frames, house posts, and common carpentry. It is something like red Jarrool.

Kengthep-guyung-ywept. This is employed for house posts and planking. It is a light inferior wood, but the specimen is much eaten by insects, and hardly of any use except to show the quality of the wood.

Kengthep-Phevoth-kyay. Employed for house posts and planking. It is a sound small-sized timber.

Pee-daup. Ditto ditto. Seems to be *Acacia serissa*.

Katso. Ditto ditto. Strong *Cedrela*-like wood, and would do for the purpose for which *Toon* is employed.

Penglay-oun. Ditto ditto. Strong, rough wood, like *Acacia serissa*.

Patseng-ngo. Ditto ditto. A very superior high-coloured aromatic wood, resembling *Toon* or mahogany.

Eng-beng. Ditto ditto. Useful for common carpentry.

Ngoo-beng. Employed for house posts and planking. Like very strong *Toon* wood.

Pyaung-pyion. Ditto ditto. A yellow compact heavy wood.

Kyep-ye. Ditto ditto. A kind of Teak.

Thabyay-nee. Used for house posts. It is a strong, close-grained, brownish-grey wood.

Bhan-bhway. Ditto ditto. Like *Sissoo*.

Thmeng-ba. Used for house posts and making cotton cleaners. It is like red Jarrool.

Toung-byeng. A kind of Saul, but of red colour.

Thiem. A serviceable timber, and would do for the better sort of carpentry.

Kouk-ko. Red Jarrool, employed for the bottom planking of boats, &c.

Kanna-tso. A fruit tree, having very tough, close-grained wood.

Ma-yam. An indestructible strong dark, heavy, red wood, especially valuable for all purposes requiring those properties.

Toung-kha-ray. Red Jarrool as before, used in boat building.

Pinnay. Strong, close-grained, yellow wood, like Jack. *Artocarpus integrifolius*.

Lienman (Orange). Heavy, close-grained, light-coloured wood, like that of *Terminalia bellerica*, but of small diameter.

Mala-ka. Small-sized strong wood, suited for hand-spikes.

Patseng-tsway. Small-sized strong wood, which would do for posts and hand-spikes.

Tseng-biyoun. Said to be a fruit tree, having compact greyish-brown wood, fit for carpentry purposes.

Tag-nyeng. A useful wood for furniture. The colour and grain are like *Toon*.

Tha-byoo. A heavy close-grained wood.

Toung-bhaut. Employed for handles of knives and spears. Rough knotty wood.

Pan-loun. Used for house posts and other building purposes. It is a red, close-grained wood.

Myeng-ta-bep. Ditto ditto. Strong bluish-grey wood, adapted for hand-spikes.

Noalee-byeng. Ditto ditto. Close-grained, strong, heavy wood, of small diameter, adapted for hand-spikes.

Thmeng-tshout. Ditto ditto. Fit for door frames and

boat beams; and is a brown heavy coarse wood of small diameter.

Bha-ta-ka. Useful for common carpentry, like red Jarrool.

Peng-lay-kaboay. Employed as house posts; a heavy, but small sized, wood, fit for hand-spikes.

Tsoay-dan. Used for gun-stocks, and might answer, like Sissoo, for gun-carriages.

Meep-thua-ban. A small-sized close-grained grey wood, employed as spear handles, spade shafts, posts, &c.

Theet-ya-han. Used for house posts. It is a close-grained Teak.

Bep-than. Ditto ditto.

Bep-won. Ditto ditto. But it is an inferior timber, like Mangoe wood.

Eng-way. Ditto ditto. Light close-grained yellowish-white wood.

Toung-biyiou. Ditto ditto. Close-grained brown wood, subject to split, adapted for hand-spikes.

Mya-kamaun. Used for knife and spear handles. It is an ebanaceous strong black wood, which might be highly useful to cabinet-makers.

Wouthay-khyay. A compact, strong, yellowish-white wood, but of small size.

Zoo-lat. Small compact, heavy, yellowish-white wood.

Daup-yan. Used for house posts and other building purposes. It is like *Myrtus pimenta*, and would serve for hand-spikes.

Yau-ma-lay. Used for house posts. This is a strong rough white wood, like white Jarrool, but heavier.

Timber forwarded from Moulemein by J. R. COLVIN, Esq., Commissioner of the Province, 1847, under their native names, six of which have since been identified by Dr. Falconer during his visit to the Teak forests of the Tenasserim Provinces in 1848-49:—

Lagerstromia macrocarpa, Pyen-ma, commonly known under the name of Jarrool.

Careya spherica, Bambooce.

Cyrtophyllum fragrans, Anan, of the Nux Vomica tribe; one of the hardest, most compact, and heaviest woods known.

Pyen-ma and Kazaret. Undetermined.

Pterocarpus indica, Podauck, one of the Leguminosae, called Rosewood. It is a very beautiful and hard compact timber, closely resembling the Andaman wood.

Indike, Ebony.

Anan as above.

Hopsea odorata, Thengan, of the Dipterocarpacee or Saul tribe; a very strong but coarse-grained timber.

Inga xylocarpa, Pyangadean, belonging to the Acacia tribe, commonly called the iron wood of the Arrakan provinces, very hard, dense and durable.

Pterocarpus indica, Paddock, as above, Rosewood of the Tenasserim provinces, a very beautiful, hard, compact timber resembling "Andaman wood," which is occasionally seen in the Bazaar of Calcutta.

TIMBER AND FANCY WOODS FROM THE MADRAS PRESIDENCY.

[The properties of many of the timber trees of the Madras Presidency have been described in Dr. Roxburgh's works, as quoted above. Dr. Wight and J. Rohde, Esq., have given much valuable information respecting many of the timbers enumerated in the following lists in the printed Report of the Proceedings of the Madras Central Committee, but of which only a single copy has as yet reached this country.]

NOTE.—Name in (3) Telinga; (4) Hindee; (5) Tamool.

From Madras.

Noonah wood.

Portia wood. 3. Gengarauni kurra. 5. Porsum marum (*Hibiscus populneus*).

Woodiah wood. 5. Oathya marum (*Odina Wodier*).

Eroombala wood. 5. Illoomilly marum (*Feriola buxifolia*).

Satin wood. 3. Billa kurra (*Chloroxylon Swietenia*).

Atts wood. 5. Authau marum.

Ven teak. 3. Takoo kurra, Hindee, Sagwan. 5. Ven takoo marum (*Tectona grandis*).

Ausena wood, *Pterocarpus*.

Mango wood. 3. Mamide kurra, Hindee, Am. 5. Mangkuttai (*Mangifera Indica*).

Saul wood. 3. Xapa. 5. Ausensee (*Shorea robusta*).

Peddawk wood. 3. Peddawkoo kurra.

Pala wood. 3. Pala kurra. 5. Paulai marum (*Mimosa hexandra*).

Trincomallee wood (*Berrya ammonilla*).

Rosewood. 4. Sissoo. 5. Katty or Vutty marum (*Dalbergia Sessoides*).

Chittagong wood. 5. Aglay, or Sitticam marum. (*Chickrasia tabularis*).

Moulmein teak, Takoo kurra, Sagwan, Taka marum (*Tectona grandis*).

Pegu wood, Jarkoo, Sagwan, Jake marum (*Tectona grandis*).

Malabar teak-wood, Takoo kuna, Sagwan, Take marum (*Tectona grandis*).

Simboorah teak-wood, Takoo kuna, Sagwan, Take marum (*Tectona grandis*).

Coimbatore teak-wood, Takoo kuna, Sagwan, Take marum (*Tectona grandis*).

Thimbeam teak-wood, Takoo kuna, Sageran, Take marum (*Tectona grandis*).

2. Angelly wood. 5. Anjelly marum.

2. Model, or puteba Ootoo wood.

2. Thingam wood.

2. Pengandoo wood.

2. Oorooopoo wood.

2. Ravirardoo wood, Kadirardoo kurra.

2. Congoo wood.

Autcha wood. 4. Abnoos. 5. Autcha marum (*Diospyros ebenaster*).

2. Peemah wood.

Minty wood.

From Madras.

Poplar-leaved Hibiscus, or Tulip-tree, Gengaramin kurra, Paris kajhar (old wood), Poorsum marum (*Hibiscus populneus*).

2. Pagoda wood.

Palmyrah wood, Thatee kurra, Tar, Panung kutta (*Borassus flabelliformis*).

Red saunders wood, Chandanum Chander soorh, Segapoo chandanum (*Pterocarpus santalinus*).

Jackwood, Palan samoo, Pinmass, Palan marum (*Butea frondosa*).

Guava wood, Jamakurra. 4. Jam. 5. Goaya khutai (*Psidium pyrifera*).

Palay wood. 3. Paula kurra, Palla, Paulai marum (*Mimosa hexandra*).

Veppaley wood, Palava renoo kurra, Dooheer kela kra, Veppalay marum (*Wrightia antidysenterica*).

Eledai wood, Raigoo kurra, Jungbe beer, Yelandai marum (*Zizyphus jujuba*).

Wood-apple, Valaga kurra, Koweet, Vella marum (*Feronia elephantum*).

Satin wood, Billa kurra. 4. Hill dhwara (*Swietenia chloroxylon*).

From Cuddapah.

Ebony wood, Tookes, Abnas, Kakatsee (*Diospyros ebenaster*).

Red saunders wood, Chandanum, Chanda soorh, Segapoo chandanum (*Pterocarpus santalinus*).

Margosa wood, Vepa kurra, Neem, Vepum marum (*Melia Azadirachta*).

Acacia Arabica wood, Nalla tooma, Siah kekur, Karoo velum (*Acacia Arabica*).

Rusty Mimosa wood, Tella tooma, Keekursafed (*Vilcillum, Mimosa ferruginea*).

Chindaga wood, Chindaca, Soorjiah, Katoo valay.

Ash-coloured Mimosa wood, Vellatorroo, Wardil Vidatil (*Mimosa cinerea*).

Yeumaddy wood, Yeumaddy, Eumaddee, Eumuddee.

ood, Yepai, Yepa aussenee (*Shorea robusta*).
 wood, Yepa, Mohe'ka jar, Yelloopai (*Bassia*).
 ood, Somee, Some'ka ther, Semmarum (*Swietenia*).
 rood, Poda. 4. Pallas.
 oga. 4. Akola (*Alangium hexapetalum*).
 wood, Rela, Amltas, Kondes (*Cassia fistula*).
 dum wood, Muddee, Jungle kameng, Maroo-
terminalia alata).
 e wood, Muddee. 4. Muddee (*Terminalia alata*).
 pala wood, Konda pala. 4. Khernee kee lakree.
 ra polhee. 3. Nulla polhee. 4. Sagharee kala

ood, Mareadoo, Bel phal, Viloo marum (*Egle*).
 la baloosoo, Nulla baloosoo, Burra munja (*Can-
 reiflorum*).
 , 2nd sort, Pala raigoo, Dordhea beer, Yelandri
jujuba).
 y. 3. Janee. 4. Janee.
 odee, 2nd sort. 3. Chinna neroodee. 4. Neroodee.
 o, or satin wood. 3. Billoo. 4. Hill dawra
ylon Swietenia).
 ida erookee. 3. Koonda erookee. 4. Junghy

skaka jhar. 4. Muske'ka thar.
 dammer wood, Googlam, Ghooglat, Koon-
Chlorozylon dupada).
 pple wood, No. 1. Pedda nerooodoo, Burra
 Peroo naga (*Eugenia jambolana*).
 pple wood, No. 1. Sunna nerooodoo, Pase jamoon,
a (Eugenia jambolana).
 wood, Yelama. 4. Dhawra.
 wood, No. 1. Pedda raigoo. 4. Sooa beer
Zizyphus jujuba).
 lee, Mooshtee, Bachla, Moottee (*Strychnos nus*

alan chebulic, Karaka, kharuraa, kadookae
lia chebula).
 aul, or yengasee. 3. Yagasee. 4. Peah saul.
 wood. 4. Mohul.
 ih wood. 3. Dhowar.
 wood. 3. Swamoo kurra.

From Hill Tracts of Orissa.

door manjaw, or Abhes. Ebony.
 m wood. 3. Bandanum.
 sh wood.
 of ebony, called Toomekachava. 3. Toome-
 kurra. 5. Kakatatee (*Diospyros ebenaster*).
 wood. 3. Yekerechava kurra. 4. Seessoo
ia Sissoo).
 er wood. 3. Googlams kurra (*Vatica*).
 pah wood, or red wood. 3. Maha nambo.
 odoor wood. 3. Goomoodoo kurra.
 wood. 3. Tadda kurra. 5. Kakatatee.
 ih wood, Somida kurra. 4. Somida (*Swietenia*
).
 h wood. 3. Yegassae kurra, Peah saloo. 5.
 arum (*Pterocarpus marsupium*).
 m wood; a die used mostly in making goolal
ia sappan).

From Cuddapah.

nders wood. Chendanum, Chanda soorkh (Sega-
 lanum). (*Pterocarpus Santalinus*).
 nd wood, Chinta kuna, Nulee, Pooleya marum
dua Indica).
 oylon, Deva daree, Deo dharee, Deva tharum
rylon areolatum).
 , Vadessa. 4. Warsa.
 jany, Pidda janee. 4. Buree janee.
 snee, Chickranee, Checkranee, Seekram.
 na eckee, Chotee gonee, Sina naree vellam
szza).
 oo pereekes, Sahree gonci, Peroo nanee vellam,

Black polkee, Nulla polkee. 4. Siah polkee.
 White polkee, Tella polkee. 4. Suffaid polkee.
 Nameluddoojoo, Nemeo laddoojoo. 4. Junglee shaum-
 baloo.
 Glomerous fig-tree, Medee, Gol leer, Attee marum
(Ficus glomerata).
 Poplar-leaved fig-tree, Ravee, Peepal, Arasa (*Ficus*
religiosa).
 Wild poplar-leaved fig-tree, Konda ravee, Jungle
 Peepul, Kat arasin.
 Gopee, Gopee. 4. Gopee.
 Emblic myrobalan, Oosarica, Amlah, Toopoo nellee
(Phyllanthus Emblica).
 Black emblic myrobalan, Nulla oosarica, Siah amlah,
 Neelee kadambo (*Phyllanthus Emblica*).
 Bunka thada, Bunka thada, Baktra.
 Rudra kadapa, Rudra Cuddapah, Roodra kurpah.
 But cadapa, Buttoo Cuddapah, But kurpa.
 Keernee, Keernee. 4. Khernee.
 Duntha, Duntha. 4. Bekul.
 Waved-leaved fig-tree, Joovee, Jovee, Kall alun (*Ficus*
infectoria).
 Vangueria spinosa, Pedda munga. 4. Bangaree keela-
 kree (*Vangueria spinosa*).
 Sarappappoo, Chara, Cherongee kaghar sarai.
 Soonkasoola, Soonkesooloo, Sunkesar kel akree, Vadee
 narainin.
 Rusty soap nut, Koopoodoo, Reeh, Manee poongum
(Sapindus rubiginosa).
 Woody Dalbergia, Kanooga, Kuny, Poongum (*Dal-*
bergia arborea).
 Thandra, Tandra, Tandra, Tane (*Terminalia bellerica*).
 Elephant, or wood-apple, Veluga kurra, Koweet vella
 marum (*Feronia elephantum*).
 Wild wood-apple, Konda vallaga, Junglee Koweet
 Kaloo Vellam (*Feronia elephantum*).
 Narva, Narava. 4. Nawikelahree.
 Pedda tapasee, Pidda tapasee. 4. Baree tapasee.
 Beekee, Bikes. 4. Bikkee.
 Jergubee, 3 sorts, Raigoo, Jungle beer, Yelandai (*Jujube*
Zizyphus jujuba).
 Palavardnee, or Relay wood, Palava renoo, Doro heci
 kelakree, Veppallai (*Wrightia antidysenterica*).
 Auray, Aree. 4. Aree.
 Goothee, Goothee. 4. Gootheeree.
 Corivee, Korivee, Korvee.
 Mimosa sami, Jamme, Jaumbee, Vannee, Mimosa sume,
 Pedda neeroodee, Pidda neeroodee, Burra neeroodee.
 Clearing-nut tree, Chilla ginga, Chill binjore Naum-
 bore naronbal, Taitan (*Strychnos potatorum*).
 Kurra pakoo, Kurie pah, Kurra vipin (*Bergera Kanigii*).
 Wild mango, Konda marindee, Jungle arm, Katoo
 maitlarum (*Spondias mangifera*).
 3. Nara mamaidee. 4. Junglee rai and Dorrake waste
(Tetranthera monopetala).
 Poplar-leaved Hibiscus, or Tulip-tree, Gengaramin kurra,
 Paris kajhar (young wood), Poorsum marum (*Hibiscus*
populneus).

From Northern Circars.

Goompana wood. 3. Goompana kurra (*Odina wodier*).
 Ganara wood. 2. Ganara kurra. 3. Ganaroo kurra.
 Wood-apple wood, Valaga kurra, Kroweet, Vella ma-
 rum (*Feronia elephantum*).
 Nulla muddi wood, Nulla muddi kurra. 5. Caroo
 maroodum (*Pentaptera tomentosa*).
 Tella muddi wood, Tella muddi kurra, Vel maroodum
 marum (*Pentaptera glabra*).
 Tangada wood, Tangadu kurra. 5. Auvarai marum
(Cassia auriculata).
 Paya wood. 3. Paya kurra.
 Annen wood, Annen kurra.
 Togaru wood, Togara kurra (*Morinda citrifolia*).
 Red dye wood, 1st sort, Vizianagrum Zemindary.
 Red dye wood, 2nd sort. Ditto.
 Boorooga wood, Buruga kurra (*Bombax Malabaricum*
 or *heptaphyllum*).

Induga wood, Induga kurra. 5. Thaethan marum (*Strychnos potatorum*).
 Nuckaroo wood, Nukkera kurra (*Cordia myra*).
 Tabica wood, Tolica kurra.
 Tellavoomemara wood. 3. Telloovoomemara kurra.
 Nullavoomemara wood, Nullaveloomemara kurra (*Diospyros chloroxylon*).
 Vulture wood, Vulture kurra (*Mimosa cinerea*).
 Bodda wood, Bodda kurra (*Ficus racemosa*).
 Voodaga wood.
 Lolooga wood, Lolooga kurra (*Pterospermum heynei*).
 Gungarane wood, Gungarane kurra. 5. Poo varasa marum (*Thespesia populnea*).
 Aguste wood (*Eschynomene grandiflora*).
 Bandita wood, Bandita kurra (*Erythrina Indica*).
 Soap-nut, or Koonkoodoo wood, Koonkoodoo kurra (*Sapindus emarginatus*).
 Camoonya wood, Kumooga marum.
 Doduga wood.
 Cumba wood, Cumbakurra.
 Goomoodoo wood, Goomoodoo kurra.
 Unkoodoo wood, Unkoodoo kurra.
 Undooroo wood, Undooroo kurra.
 Iscarawsee wood, Iscarawsee kurra.
 Ghantha wood, Ghantha kurra.

From Coimbatore.

Black wood. 5. Irrooppoottoo marum (*Dalbergia latifolia*).
 Vangay wood. 3. Vana kurra (*Pterocarpus marsupium*).
 Curry murdah wood. 5. Karai maroodoo marum (*Terminalia glabra*).
 Sadachoor, or Thadasoo wood. 5. Sadaichee marum (*Grewia tiliaefolia*).
 Purrumbay wood. 5. Parumbai marum (*Prosopis spicigera*).
 Vadu coornie wood. 5. Vadungoorany marum (*Bignonia xylocarpa*).
 Toarattie wood, Toarathe marum, *Capparis divaricata*. (*Casuarina equisetifolia*).
 Neer cadumbay wood, Neer cadumbai marum (*Naucllea parviflora*).
 Munja cadumbay wood. 5. Manjull cadumbai marum (*Naucllea cordifolia*).
 Woonga wood. 5. Woonga marum (*Acacia amara*).
 Curringly wood. 5. Caroongaly marum (*Acacia Sundra*).
 Pinnay wood. 3. Ponna kurra. 5. Pinnai marum (*Dillenia pentagyna*).
 Pilla murdoo wood. 5. Pilla maroodoo (*Terminalia chebula*).
 Ugay wood, Ooku marum (*Salvadora persica*).
 Curry vangay wood. 5. Caroo vangai marum (*Acacia odoratissima*).
 Vel vaila wood. 5. Vel Velan marum (*Acacia leucophylla*).
 Nunjoonda wood. 5. Nunjoonda marum (*Balanites Aegyptiaca*).
 Allum vildoo wood. 5. Allum vildoo (*Ficus Indica*).
 Vellaytoarattie wood, Vellaitoarattie (*Capparis grandis*).
 Mavoolinga wood, Mavoolinga marum (*Cratava Roxburghii*).
 Erovaloo wood, Irroovaloo marum (*Inga xylocarpa*).
 Corkapully wood, Cadookapooly marum (*Inga dulcis*).
 Ayah wood. 5. Ayah marum (*Ulmus integrifolia*).
 Kalli milk hedge wood. 5. Kalli (*Euphorbia tirucalli*).
 Peru wood. 3. Pethawkoo kurra. 5. Peroo marum (*Ailanthus excelsa*).
 Yellah culley wood. 5. Yellai kullie (*Euphorbia neriiifolia*).
 Putchalay wood. 5. Putchalai marum (*Dalbergia paniculata*).
 Eetcha wood, or Date wood. 5. Eetcha marum (*Phænix sylvestris*).
 Cocoa-nut wood, Golbarce kurra, Narel, Thenna marum (*Cocos nucifera*).
 Moorkoo wood. 5. Moorookoo marum (*Erythrina Indica*).

Paroonjoly wood. 5. Paroonjoly marum (*Hymenodictyon utile*).
 Moolloo vangay wood, Moolloo vanai marum (*Brientalis spinosa*).
 Vellay naga wood. 3. Tella nareedoo kurra. 5. Vella naga marum (*Conocarpus latifolia*).
 Eichie wood. 5. Eichie marum (*Ficus tsiela*).
 Nawel wood. 3. Naredon kurra. 5. Nawel marum (*Eugenia caryophyllifolia*).
 Woodoogoo wood. 5. Woodoogoo marum (*Chryse collina*).
 Acacia. Areca-nut, or Camoogoo wood. 5. Camoogoo marum.
 Anny curry wood. 5. Annaikarai marum (*Odina woodier*).
 Kurkutta wood. 5. Kurkutta marum (*Zizyphus gelundus*).
 Vel vangay wood. 5. Vel vangay marum (*Acacia speciosa* or *flexuosa*).
 Vellay murdah wood, Vellai murdoo (*Terminalia berryi*).
 Munjay pavutay wood. 5. Munja pavuttai (*Morinda citrifolia*).
 Furniture woods grown in Pinang or Prince of Wales Island, sent by Singapore Committee:—Siam wood. Ebony. Wild Durian. Uncertain. Angsena wood. Guava wood. Kamuning. Senna Baymah or Angsena. Mirlimoh, two kinds. Baloh. Baloh Bunga. Root of Betelnut tree. Root of Cocosnut tree. Clove wood. Root of Eboch tree. Timbusu. Siam wood. Timbusu. Baloh. Baloh Bungah. Ranggas. Pinang wood. Kulim. Baloh. Ibool wood.
 Lingoa wood, or the Amboyna wood of commerce, from Ceram in the Moluccas. It was imported in considerable quantities into Great Britain during the period in which the Moluccas were British possessions. This wood, which is very durable and capable of a high polish, is abundant at Ceram, New Guinea, and throughout the Molucca Sea. It can be obtained in any quantity if the precaution is taken of ordering it during the previous trading season. The Kayu Buka of commerce is the knarled excrecence of this tree. Presented by Messrs. Almeida and Sons, of Singapore, the importers.
 Lingoa wood, from Ceram. A circular slab, 6 feet 7 inches in diameter. These large circular slabs are obtained by taking advantage of the spurs which project from the base of the trunk, as the tree itself has not sufficient diameter to furnish such wide slabs. They are occasionally met with as large as 9 feet, but the usual size is from 4 to 6 feet. Presented by Messrs. Almeida and Sons, of Singapore.
 Kayu Buka, from the Moluccas. This wood is obtained from the knotty excrecences which are found on the stems of the Lingoa tree. It is brought to Singapore by the Eastern traders from Ceram, Arru and New Guinea, and is sold by weight. It is much esteemed as a fancy wood.
 Useful woods of the Malay Peninsula:—Bintangor wood. In general use for planks, masts, and spars; in fact it holds the same position in the Straits as the pine in America. It exists in the greatest abundance around Singapore, and is exported to the Mauritius and to California:—Kledang. Biliang. Changis. Klat. Timbusu. Kayu Brompong. Angsanah. Tampinis. Tanpang. Kranji. Slumar. Simpoh Bukit. Krantai. Kamuning. Simpoh Ryah. Merbow. Medansi Miniak. Ditto, Bush Yeah. Ditto, Konit. Ditto, Kitanahan. Ditto, Tandoh. Bilion Wangi. Jambu-Ayer-Utan. Peragah. Kayu Arang. Leban. Ranggas. Bras-bras.
 Glam. The glam tree furnishes a paper-like bark used in caulking the seams of vessels.
 Poolai wood used as floats for fishing nets.
 Sandal wood. The island of Timor is the only place which produces it in the Archipelago in any quantity.
 Sapan wood, from Siam and the Philippine Islands. Furnishes a red dye, and is, in fact, the logwood of the Archipelago. Exported in large quantities to Europe.
 The growth of Singapore:—Knee timber. Merbow wood. Seventy specimens of timber.

Canes, reeds, and grasses, from Singapore Committee :—
Cane walking sticks from Malacca and Sumatra, as cut from the jungle previous to being subjected to the process of smoking, which gives them their rich brown tint.

Ditto six varieties thereof.

Canes and sticks of kinds from Cochín.

Bamboos from the jungles in the vicinity of Calcutta.

Bamboos from the Tenasserim provinces :—*Bambusa spec.*, *Bambusa gigantea*, *Bambusa stricta*, *Bambusa spec.*, *Calamus angustifolia*, *Calamus fasciculatus*, and five other species.

Calamus rotang, used in making rattan chairs, &c.

Saccharum sp., used by natives instead of quills to write with.

Arundo karka, used in preparing hookah snakes.

Cyperus tegetum, employed in making mats.

Khus-khus or scented grass, from Ulwar in the states of Rajpootana.

Phrynium dichotomum, Settulputtee, of which the finest mats are made; grown in the district of Chittagong.

(I.) Miscellaneous Substances.—Vegetable Kingdom.

Mishmee bih, Bih booteah, poisons for poisoning arrows, from Bengal.

Twigs, used as tooth brushes (*Trophis aspera*), from Bengal.

Sapindus emarginatus, Soap nut, from Madras.

Soap nut, Kunkude kaya, from Vizagapatam.

Another kind of soap nut (*Mimosa abstersens*), from Calicut and Madras.

Clearing nut (*Strychnos potatorum*), from Madras.

Animal Substances used as Food, or in the preparation of Food.

Preserved hump of the East Indian ox, from India. (J. Clarkson, 171 Strand.)

Fish paste, two jars, from Arrakan.

Sharks' fins (punk), from Rao of Cutch, Arrakan, Tenasserim, Malacca, and Manilla, used in China as an article of food.

Shark's fins (Cutch). These are exported to Bombay for re-exportation to China.

Shark's fins (Bombay). What are exported from Bombay are chiefly imported from other countries.

Isinglass, prepared by Mr. Scott, of the Hon. East India Company's Dispensary, presented by Dr. McClelland.

Fish maws, isinglass (ohola), from Rao of Cutch, Tenasserim, Sumatra. Fish maws from Cutch are exported to Bombay for re-exportation to China.

Fish maws (Bombay). What are exported from Bombay are chiefly imported from other countries.

Edible birds' nests, 1st quality, from Sambawa, east of Java, and from Java. The nests of the *Hirundo esculenta*, collected chiefly in the limestone caverns of the south coast of Java, and the islands of the eastward as far as Arru, near New Guinea; highly esteemed for their supposed nutritious and restorative properties.—From Singapore.

Edible birds' nests, 2nd quality, from Borneo; 3rd quality, from Borneo and from Tenasserim.

Trepang, or edible sea slug (*Beche de Mer*), from Borneo. Collected in large quantities throughout the Indian Archipelago, especially among the eastern islands, for the China market.—From Singapore.

The other varieties are *Lotong*, *Buangkulil*, and *Pandang*.

Honey, from Beerbhoom and the Cossya Hills.

Animal Substances used in Medicine and in the Arts.

Musk, in pod and in grains; Nepal pods in a bamboo bottle, from Assam.

Musk, ambergris, and civit, are usually supplied to Bombay, from Aden.

Blistering beetle (*Mylabris cichoria*; *Meloe trianthemæ*).

Elytra, or beetle wings. From Dr. C. Huffnagle.

The beetle. The elytra, or beetle wings. Garlands made from the elytra. Muslin, as ornamented with the elytra.

Wool, Hair, Bristles, and Whalebone.

Camel's wool, and camel's hair cloth.

Sheep's wool (Sindh). A small specimen only from Sindh was supplied. The piece of brown woollen cloth is stated to have been made from it.

Wool, from Rao of Cutch. About a sixteenth part of the wool produced in Cutch is stated to be used for home consumption, and the rest exported to Bombay.

White and black twisted and untwisted wool, from Rajah of Bickaneer.

Wool (Assan and Chusmas wool), from Rajah of Jesselmere.

One maund of sheep's wool, Bengal.

Specimens of sheep's wool and goats' down, from Ladak, obtained by Lieut. Strachey, B.E.

Wool (Bal), Jang-bal (Nakpo), black, Highland wool.

Yunibu (Highland), white wool.

Rong-bal (Karpó), white, valley wool.

Jung-bal (Karpó), white, Highland wool.

Goats' down; Tibetan (Lena and Kulu), Turkish (Tibbit), Persian (Kashm), and Hindostanee (Pashm).

Lena karpó (Kalchak), white goats' down, picked.

Lena nakpo (Kalchak), dark goats' down, picked.

Tibbit Yarkhendí, goats' down from Yarkend; Tibbit Khotani, goats' down from Khote; Tibbit Turfani, goats' down from Turfan.—Provinces of Chinese Turkey.

Kulu, yaks' down.

Tsoos-kul, down of the "tsos" antelope, and a piece of the animal's skin.

Wild boar, elephant, and porcupine bristles.—Madras.

Silk from the Silk-worm, and other species in India.

4480 cocoons, from Bhagulpore.

Areah cocoons, from Assam.

Raw tusseh silk (*Saturnia mylitta*), from Bhagulpore.

Raw silk, 1½ seers, and 1 skein wild silk, from Arrakan.

Mazankoorée (thread) lata, and Areah lata, from Assam.

Raw silk, Areah silk, Moongha silk, 12 kinds, from Assam.

Coloured raw silk, from vicinity of Calcutta.

Raw silk, from Azimgurh, Nepal, and Mysore.

Tussur (or Tusseh), Eri, Moonga, and Pat Silk.

Saturnia Mylitta (Tussur), feeds upon the *Terminalia catappa* and *Zizyphus jujuba*. Eggs and caterpillar; cocoons; silk; cocoons from which the moth has escaped; the moth, male and female; and one piece of Tussur cloth, made at Midnapore.

Bombyx Saturnia (Moonga), feeds upon the *Zizyphus jujuba* and *Terminalia catappa*. Eggs and caterpillar; cocoons; silk; moth, male and female; and one piece of Moonga cloth, made in Assam.

Phalena Cynthia (Eri), feeds upon the *Ricinus communis*. Eggs and caterpillar; cocoons; silk; moth, male and female; and one piece of Eri cloth, made in Assam.

Bombyx Mori (Pat), feeds upon the mulberry. Eggs and caterpillar; cocoons; silk; moth, male and female; and one piece of cloth, made in Assam.

A specimen of the *Saturnia Atlas*, and coloured drawings of the *Terminalia catappa*, *Zizyphus jujuba*, and *Ricinus communis*. The property of Dr. Charles Huffnagle.

Raw silk :—Four varieties from Messrs. J. and R. Watson's manufacture, Surdah filature. The silk has been obtained from Bengallee or Deseé worms, which feed on mulberry leaves or toot plant. Four varieties from Mr. W. Macnair's manufacture in the Joradah filature. The silk has been obtained from Nistry and Deseé worms, feeding on mulberry leaves; it is the produce of the November bund, and made from small yellow cocoons.—Assorted in a case and contributed by D. Jardine, Esq., of Calcutta.

Raw silk :—Two varieties from Rakhaldoss Mookerjee's manufacture, Cossim bazar filature. The silk has been obtained from Nistry worms, which feed on mulberry leaves. Two varieties from Bahary Laul, Mookerjee's manufacture, Cossim bazar filature. The silk has been obtained from Nistry worms feeding on mulberry leaves.

Two varieties from Degumber Mittre's manufacture, Cossim bazar filature. The silk has been obtained from Bengal or Deese worms, which are bred and reared from the beginning of October to the middle or close of November, and are fed on the tender shoots of the mulberry plants. One variety from C. R. Jennings, Esq.'s manufacture, Galimpoore filature. The silk is obtained from Bengal or Deese worms, which feed on mulberry plants or *Toot past*; the produce and colour of the cocoons are generally better from mulberry grown in strong clay soil.—Assorted in a case, and contributed by D. Jardine, Esq., of Calcutta.

Raw silk:—Manufactured by Messrs. V. and S. M. Vardon, Soogapoor, of eight cocoons of the rainy bund.—From the Calcutta list.

Feathers, Down, Fur, and Skins.

White and black ostrich feathers, from Aden.

Manufactures of feathers by the natives, raw feathers, boas, tippets, artificial flowers, from Dr. C. Huffnagle.

Boas, tippets, victorines, &c., from the down of the young *Ciconia argala*, collected at Commercally.

Cranes' white feathers, from Arrakan and Tenasserim.

Tails of the yak, or *Bos grunniens*.

Chouries, from Arrakan.

Black tiger skins, from Madras, Calicut.

Antelope skins, from Rajah of Patteala.

2 leopard skins, 3 tiger skins, 1 spotted deer skin, 1 white or tawed deer skin, 2 fawns, from Bengal, from G. C. Cheap, Esq.

100 Bengal deer skins, from Patna.

50 buffalo hides, 100 goat skins, 50 cow hides, from Bengal.

Two squirrels and two lizards.

Deer skin, otter skin, jowmalah skin, squirrel skin, kooteah skin, from Assam—Baboo Deenanath.

Brown bear skin.

2 pieces of fish skins, 8 specimens of kingfishers' skins, from Arrakan.

Raw and tanned skins of elk, buffalo, bull, tiger, cheeta, wild cat, goat, sheep, deer, elephant, bison.—Madras.

Bone, Horn, Hoofs, Ivory, &c.

Horn tips. Deer and buffalo horns, with skulls and without. Wild Mython cow's head, complete. Mountain sheep's head. Takin's head. Singphoo cow's head, Mishmee. Singphoo cows' heads, without skulls, three pairs.—Assam, Captain Smith and Mr. W. S. Hudson.

Two buffalo horns.—Tenasserim Provinces.

Buffalo and deer horns, from interior. Rhinoceros horns, from Zanzibar. These are imported at Bombay, from the eastern coast of Africa, Zanzibar, and the Somali coast; they are then re-exported to China for making cups and ornaments. The one sent is the double horn of the *Rhinoceros Africanus*.

Two nielgai horns, and rhinoceros horn.—Moulmein, Tenasserim Provinces.

Horns of bison, buffalo, elk, antelope, deer (one pair).—Madras.

Scientific Names of Horns and Skins from India.

The gour (*Bos [bibos] cavifrons*), Hodgson; (*Bos gourus*), Hamilton Smith.

The arnee (*Bos [bubalus] arna*), Hodgson.

The barah sinha (*Cervus [bucervus] elaphoides*), Hodgson; (*Cervus duvaucellii*), G. Cuvier.

The sambar (*Cervus [ruusa] hippelaphus*), Cuvier.

The kaker, or barking deer (*Cervurus [muntiacus] vaginalis*), Boddart.

The axis (*Axis maculata*).

The thar (*Capricornis bubalina*), Hodgson.

The hog deer (*Axis porcinus*), Zimmerman.

The rasser, or roosh (*Ovis polii*), Blyth.

Flying squirrel (*Saurus pelaurista*), Palls.

Takin (*Bridorcas saxicola*), Hodgson.

Elephants' tusks.—Tenasserim Provinces.

Elephant's tusk.—Nepal.

Elephants' tusks, and hippopotamus' teeth, Somali Coast.—Aden.

Elephant's tusks.—Madras.

Bundle of Mergui tortoise-shell.

Shell of the hawk's-bill turtle, Sulu Islands. The tortoise-shell of commerce, from Singapore.

Mother-of-pearl shell, Arru Islands and Sulu.

Pearls, &c.

340 seed pearls.—Kurrachee, vid Seind and Bombay.

These seed pearls are from the fishing at Kurrachee. They are small and of little value, except with those who esteem them as a medicine, to wit, the Persians and some of the Hakeems of India.

Pearl-oysters were not procured at Kurrachee before the times of Meer Moorad Ali Khan. They were obtained in this manner (Bombay Report):—

The oysters come up to the shore at high water. When the tide fell, there they remained, and Coolies were employed for the occasion; who gathered them up, put them in boats, and landed them all at Keesamaree Point. There the shells were broken, and the pearls extracted, under the orders of the contractors, who paid the Tulpoore Government a yearly sum for the pearl contract; at first, only 500 rupees per annum were paid, but after a time, 40,000 rupees were given for the same period. Now, even Government sell yearly the right of sifting the shells in search of any pearls that may still remain.

Fresh-water pearls, with their shells.—Moorahadabad.

27 Mergui pearls.

Bundle of pearl oyster-shells.—Tenasserim.

Shells from Zanzibar, vid Bombay.

Bombay shells (so called in India): these are imported from Zanzibar in large quantities, and are stated to be exported to England, or to the Mediterranean for cameo. The specimens sent are those of *Cassia rufa*.

Cowries, cyprei, imported from the Maldives Islands, and current as money in India.

Oils, Tallow, Wax, and Lard.

Bengal tallow.

Bees'-wax, 13 seers 12 chek.—Bhagulpore.

Bees'-wax, three varieties, from Borneo.

The bee of the Indian Archipelago does not make its nest in hives, as in Europe, but suspends it from the branch of a tree, in which position they may be seen forming masses of considerable bulk. Certain trees become favourites, and are selected by them, year after year, for many generations, although often disturbed by the taking of their nests. These trees become private property among the Eastern tribes, and are handed down from father to son.

Glue, Isinglass, and Gelatine.

Isinglass from *Polynemus plebeius*, v. supra.

Polynemus plebeius; the fish yielding Bengal isinglass, from Dr. Walker.

Fish, called chuppa, yielding isinglass.—Arrakan.

Lac.

Glass case, containing illustrations of the process of lac manufactures. The lac insect, young. Stick-lac, seed-lac, lac dye, shell-lac, sealing-wax, shell-lac ornaments.—Dr. C. Huffnagle.

Stick-lac, and a kind of lac.—Calcutta.

Seed-lac, one maund.—Bhagulpore.

Shell-lac, of the kind called bala, and of the kind called chanuk.—Beerbhoom.

Lac from off the Peepul-tree (*Ficus religiosa*); and of the ban, or Indian fig-tree (*Ficus indica*); and off the bere, or *Zizyphus jujuba*.

Stick-lac, on twigs of *Mimosa abstergens* and *Ficus religiosa*.—Malabar, vid Bombay.

Stick lac: this is imported at Bombay, from Sindh; also brought from the Southern Mahratha country, and most parts of Western India, for re-exportation to China and England.

Gum-lac.—Singapore.

Raw lac.—Ganjam.

Stick-lac and seed-lac.—Bengal.

Lac dye, 1 maund 10 seers.—Bengal.

MISCELLANEOUS COLLECTION of MINERAL, VEGETABLE, and ANIMAL SUBSTANCES useful in Medicine and the Arts, made by Dr. ROYLE, in the Bazaars of the Bengal Presidency; with some additions from Dr. FALCONER (F.), obtained in Cashmere, and others from Dr. STOCKS (H.), procured by him in the Bazaars of Scinde. The collection is interesting, as containing most of the useful products of India, besides enabling us to identify many of the substances which were known to the Arabs as well as to the Greeks, as the author has endeavoured to show in his works, "Essay on the Antiquity of Hindoo Medicine," and "Illustrations of Himalayan Botany."

ROOTS.

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
1	Aboo Khulsa	Rutunjot	Mooltan	Alkanet?
2		Rutunjot		Lithospermum?
3	Aboo Kanus		Roum.	
4	Atees butees		Kedarkanta. . . .	Aconitum heterophyllum.
5			Guzerat.	
6		Bish, 2nd	Caubul.	
7	Atees, F.	Tirayamen	Kedarkanta.	
8	Uzkheer		India	Andropogon, camel's hay.
9	Askhar, St. Iskeer.			
10	Urkoh? Arkuree	"Ree," or "Maroee"	Scinde.	
11	Urloo	Tat burunga	India, Dehli	Bignonia indica.
12	Asaroon	Tuggur	Hills	Viola sp., substitute for Asarum
13	Tugur F. substitute.			European.
14	Afeemedoon		Dehli, Surat	Epithymum.
15	Iskeel		India	Scilla indica.
16	Asgund	Nageuree	India	Physalis flexuosa.
17	Asgund	Hatras	Mirzapore.	
18	Akurkura		Dehli	Anthemis pyrethrum.
19	Amba huldee		Arabia	Curcuma.
20	Urnuryan		Arabia.	
21	Anarooli			
22	Unteleh Souda	Nirbisee dukhunee	Umritseer	An Aconitum?
23	Unteleh Souda			Aconitum Ferox.
24	Unjbar roomee			Bistort or Snake-wood.
25	Unjbar, St.			
26	Unjbar		Cashmere?	
27	Aveel Kusmeeree			
28	Aal, F.			Morinda citrifolia.
29	Ayrsean, St.			Orris-root.
30	Barahce Kund		Caubul.	
31	Beeja Sar, F.			Acorus Calamus.
32	Bidaree Kund	Sural cheep	Gunga ke kadir	Hedysarum tuberosum.
33	Bidhara			
34	Burkak Shirazee		Surat.	
35	Bekh Atrilal			
36	Burmooloo?			
37	Bisfaij		Caubul	Polypodii, sp.
38	Bisfaij, F.		Caubul.	
39	Biskhupra		India	Trianthema pentandra.
40	Bilsekund			
41	Bunufsha		Cashmere and Hills . .	Viola repens.
42	Bozeedan		Surat.	
43	Buehmun soorhk		Caubul.	
44	Buehmun suffed		Surat.	
45	Buehmun suffed, F. . . .		Iran.	
46	Buehmun suffed, St. . . .	Dehli	Scinde	White Bahman.
47	Buehmun suffed		Bengal.	
48	Bish			Aconitum ferox.
49	Bish	Kala koot	Umritseer.	
50	Bish, 2nd specimen		Peshawur.	
51	Pukhan bed		Himalayas	Saxifraga ligulata.
52	Pelijeree, F.			Thalictrum.
53	Pursoona			
54	Pokhur mool		Dehli, Guzerat, Umritseer.	
55	Pearanga			
56	Tal moolie			Curculigo orchoides.
57	Toorbud	Rusot	India	Convolvulus turpethum.
58	Mishmee Teeta			Coplis Teeta.
59	Jalapa		Dehli Bazaar	Convolvulus Jalapa.
60	Jamghas		Surat via Dehli	An Polypodii sp.
61	Judwar	Nirbisee, 2nd	Umritseer.	
62	Judwar			
63	Judwar, St.			Zedoary.
64	Junteeana		Caubul	Gentian.
65	Junteeana 2nd		Surat via Dehli.	
66	Chirya kund		Cashmere via Dehli.	
67	Chob Cheenee		Poorub	Smilax china.
68	Chaya			
69	Chok		Umritseer	Orris-root sp.
70	Hunzil			Cucumis colocynthis.
71	Khirkuk, substitute for . .			Hellebore.
72	Khus khus	Punnee	India	Andropogon muricatum.
73	Khunjuk, St.			

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
74	Salep hindee.			
75	Salep misree.			
76	Salep misree, F.		Saharunpore	<i>Eulophia campestris</i> .
77	Salib misree	Khoosyut ool Salib	Caul	Orchidee.
78	Khuseet ool Salib, 2nd		Poorub.	
79	Kholinjan			<i>Alpinia Galanga</i> .
80	Dar huld		Himalayas	<i>Berberis Asiatica</i> .
81	Doorunaj Akabee	Utees?		<i>Doronicum pardalianches</i> ?
82	Dantun, F.	Jumulgotta kejur		<i>Croton Tiglium</i> .
83	Doodhee			<i>Euphorbia tristis</i> .
84	Doodhee			<i>Euphorbia tristis</i> .
85	Rawa, St.			Prepared Turmeric.
86	Rawund		Himalayas	<i>Rheum Emodi</i> .
87	Rewund Khutai			<i>Rheum sp.</i>
88	Rewund Chenec, F.		Nujeebabad.	
89	Rewund Chenec, St.			
90	Rataloo, F.			<i>Rheum Ribes Dioscorea</i> .
91	Pesha Khutmee, F.			
92	Zurawund taveel		Cashmere.	<i>Aristolochia longa</i> .
93	Zurawund gird or mood-ehruj		Cashmere.	<i>Aristolochia rotunda</i> .
94	Zurawund Moodehruj.			
95	Zurunbad	Kuchoor		<i>Curcuma Zerumbad</i> .
96	Zurunbad.			
97	Kuchoor, F. and St.	Dot.		<i>Zingiber officinale</i> .
98	Zunjbeel	South		Green ginger.
99	Ada		Himalayas	
100	Salsa		Surat.	
101	Sutawur		Nujeebabad	<i>Asparagus ascendens</i> .
102	Sutawur suffed		Dehli.	
103	Suttee	Kupoor kuchoor	Dehra and Khalsee	<i>Globba sidhouol</i> .
104	Saad	Motha	Guzerat	<i>Cyperus rotundus</i> ?
105	Saad, 2nd		Dehli	<i>Cyperus rotundus</i> .
106	Cyperus, Saad	Nagur motha		<i>Cyperus juncifolius</i> ?
107	Sunbul Balchur	Jatamansi	Himalayas	<i>Nardostachys Jatamansi</i> .
108	Soombul? Sunpat?			
109	Sorinjan shereen		Surat	<i>Colchicum illyricum</i> ?
110	Sorinjan, F.			
111	Sorinjan tulkh		Caul	
112	Sathees, F.		Saharunpore.	
113	Soos	Mulethee		Liquorice Root.
114	Sosun	Eersa	Caul	Orris Root.
115	Set Burwa, F.			
116	Serab, F.			
117	Sheebabee	Jur oorad	Surat	<i>Phaseolus Max. radiatus</i> .
118	Shakakel			
119	Shakakel misree		Egypt?	
120	Gajur misree		Peshawur.	
121	Shakakul		Cashmere.	
122	Shakakul		Cashmere.	
123	Shakakul		Cashmere.	
124	Shuojun			
125	Shogun mentri			
126	Sheeturuj	Cheeta		<i>Plumbago Zeylanica</i> .
127	Songhia			
128	Turasees			
129	Akurkura	Kurkura	Calcutta	<i>Anthemis pyrethrum</i> .
130	Aruk ool Sufr huldee	Jaola huldee	Poorub.	
131	Aruk ool Sufr			<i>Turmeric Curcuma longa</i> .
132	Umba huldee			
133	Umba huldee			
134	Huldee			
135	Huldee		Bengal.	<i>Curcuma species</i> .
136	Huldee			
137	Puharee huldee			
138	Puharee huldee, F.			
139	Poombee huldee			
140	Moela huldee		Poorub.	
141	Huldee			
142	Fawania	Ood Salub	Arabia	<i>Pæonia corallina</i> .
143	Pipula Mool	Filfil moorbel		<i>Piper longum</i> .
144	Filfil moorbel		Poorub.	
145	Fooh	Munjeeth		<i>Rubia Munjeet</i> .
146	Munjeet		Arabia	<i>Rubia tinctorum</i> .
147	Koot	Costus of ancient	Cashmere	<i>Aucklandia Costus</i> , series of F. coner.
148	Koot, St.			
149	Koot shereen			
150	Koot tulhh		Muritsur.	
151	Koost?	Poongee		
152	Koolun		Surat	<i>Columba</i> .
153	Kala bichwa		Lucknow	<i>Polypodium sp.</i>
154	Kamruj		Poorub	<i>Felix</i> .
155	Kana kuchoo			Truffles.
156	Kibbur		Caul	<i>Capparis spinosa</i> ?

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
157	Kibbur (bark of root).			
158	Kutol . . . . .	. . . .	Dehli.	
159	Bekh Kurfs . . . . .	. . . .	Caubul	Apium graveolens.
160	Kurroo . . . . .	. . . .	Hills	Gentiana.
161	Kissar Kejur . . . . .	. . . .	Saharunpoor	An Cissus.
162	Kuseroo . . . . .	. . . .	Dehli	Cyperus tuberosus.
163	Kukora . . . . .	. . . .	India	Momordica muricata.
164	Banj Kukora.			
165	Koonduah . . . . .	. . . .	. . . .	Apparently, Costus.
166	Koothee.			
167	Kurkee pona kejur.			
168	Keer.			
169	Guj peepul . . . . .	. . . .	Himalayas	Pothos scandens.
170	Gushoona.			
171	Giloh . . . . .	. . . .	India	Memisperumm condifolium.
172	Gunmaturee.			
173	Gorkhe pan.			
174	Loofa . . . . .	. . . .	Surat	Atropa Mandrogam.
175	Mazroon . . . . .	. . . .	. . . .	Daphne mezereon.
176				
177	Mahmيران . . . . .	. . . .	Cashmere	Ranunculus ficaria?
178	Mahmيران Khutai.			
179	Mahmيران (different).			
180				
181	Moghas	Muedi lukri . . . .	. . . .	Tetranthera.
182	Muleem . . . . .	. . . .	Himalayas.	
183	Moosli suffed . . . . .	. . . .	Gwalior.	
184	Mooslee (another kind).			
185	Moosli suffed	Sawbul	India	Bembax heptaphyllum.
186	Moosli siah.			
187	Moosli siah Dukhnee.			
188	Moosli siah, St.			
189	Bekh mhuk.			
190	Neergundi . . . . .	. . . .	Dehli.	
191	Nisoth, F.			
192	Nur Kuchoor.			
193	Wuj	Buch	Khorassan	Acorus Calamus.

WOODS.

194	Bardust abnoos		India	Ebony.
195	Beejesar	Bijuk	Dukhun.	
196	Bookum	Puttung(sappan wood).		Cæsalpinia sappan.
197	Pudmak . . . . .	. . . .	Deyrah.	Prunus Puddum.
198	Tejbul . . . . .	. . . .	Hills	Xanthoxylon aromaticum.
199	Deodar			Pinus deodara.
200	Sundul abiaz	Sundul suffed (white sandal wood).	Dukhun	Santalum album.
201	Sundul ahmur	Rukut chundoun (red sandal wood).	Poorub	Pterocarpus santalinus.
202	Ood	Ood hindee	Hatras	Aloescylon Agallochum.
203	Ood	Agur (aloes wood, eagle wood).	. . . . .	Aquilaria Agallocha.

BARKS.

204	Ukl Beer	Ik1 beer	Poorub	Datisca cannabina.
205	Burkuk Shirazee . . . .	. . . .	Surat.	
206	Bharungee . . . . .	. . . .	Almora	Betula Bhojputra.
207	Bhoj puttra.			
208	Bhumbel . . . . .	. . . .	Himalayas	Euonymus tingens.
209	Tejbul . . . . .	. . . .	Himalayas	Xanthoxylon aromaticum.
210	Dar Cheenee	Cinnamon	Poorub	Laurus cinnamomum.
211	Dar Sheeshan	Kuephul	Himalayas	Myrica sapida.
212	Roo, St.			
213	Sut peora	Boorans	Foot of Himalayas	Rhododendron arboreum.
214	Tuj	Saleckhee	Nujjibabad	Laurus cassia?
215	Sunna.			
216	Ooshk chal.			
217	Kirfae . . . . .	. . . .	Furruckabad.	
218	Koorchee.	. . . .	
219	Koora . . . . .	. . . .	Kheree Pass	Echites.
220	Kunhar kapost.			
221	Kayree, St.			
222	Kheree chips, St.			
223	Lulka.			
224	Lodh . . . . .	. . . .	Himalayas	Symplocos racemosa.
225	Musag, bark of Akhroot.	Walnut.		
226	Mueda lakree	Chandrem	Almorah	Tetranthera apetala.

PLANTS.

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
227	Abroon . . . . .	. . . . .	Dehli	Labiata.
228	Arank.	. . . . .	. . . . .	. . . . .
229	Oostookhodoos . . . . .	. . . . .	Caulul	Fraxella.
230	Aspruk, St. . . . .	. . . . .	. . . . .	Delphinium.
231	Oostukhar . . . . .	. . . . .	Dehli . . . . .	. . . . .
232	Oosneh	Chulchuleera	Himalayas	Lichen islandicus.
233	Uftimoon . . . . .	. . . . .	Caulul	Cuscuta Europaea.
234	Uftimoon, F. . . . .	. . . . .	Cashmere ?	C. reflexa substituted.
235	Uftimoon Kusmeerees.	. . . . .	. . . . .	. . . . .
236	Umr bel . . . . .	. . . . .	Dehli	Cuscuta.
237	Ufsunteen Kusmeerees	. . . . .	Caulul	Artemisia abrotanifolia ?
238	Ufsunteen, F. . . . .	. . . . .	. . . . .	. . . . .
239	Ufsunteen, spurious, St.	. . . . .	. . . . .	. . . . .
240	Ufsunteen . . . . .	. . . . .	Peshawur.	. . . . .
241	Ufsunteen, true, St.	. . . . .	. . . . .	. . . . .
242	Afeenoos . . . . .	. . . . .	Dehli Surat.	. . . . .
243	Akas bel.	. . . . .	. . . . .	. . . . .
244	Aloosureemoon . . . . .	. . . . .	Surat via Dehli.	. . . . .
245	Amarcetum.	. . . . .	. . . . .	. . . . .
246	Umsookh . . . . .	. . . . .	. . . . .	. . . . .
247	Umar Bent	Acid twigs	Dehli.	. . . . .
248	Anarooli.	. . . . .	. . . . .	. . . . .
249	Dukhun nirbisee	Unteleh eouda	Umrteer.	. . . . .
250	Undhaolee . . . . .	. . . . .	Dehli.	. . . . .
251	Undaolee.	. . . . .	. . . . .	. . . . .
252	Oonga	Chirchita	India	Achyranthes aspera.
253	Oordabeg . . . . .	. . . . .	Saharunpore.	. . . . .
254	Baboonah	Chamomile	India	Anthemis nobilis.
255	Baboneh, St.	Chamomile ? . . . . .	. . . . .	. . . . .
256	Eema wanoo talce.	. . . . .	. . . . .	. . . . .
257	Badlaward . . . . .	. . . . .	Surat	An Hedysarum Alhagi.
258	Badranj boyeh	Billee lotan	Poorub	Ocymum.
259	Balungoo . . . . .	. . . . .	India, Kunawur	Dracocephalum Royleanum.
260	Birm Dundee . . . . .	. . . . .	India.	. . . . .
261	Barunjasif . . . . .	. . . . .	Nujibabad	Artemisia.
262	Buryaleh	Buj band Khureentee	India	Sida cordifolia.
263	Bures boontee.	. . . . .	. . . . .	. . . . .
264	Bomadrum.	. . . . .	. . . . .	. . . . .
265	Bulsan	Balm of Gilead tree	Surat	Balsam odendron.
266	Bunufuf . . . . .	. . . . .	Cashmere and Himalayas.	Viola repens.
267	Bunufsha.	. . . . .	. . . . .	. . . . .
268	Birr perosa.	. . . . .	. . . . .	. . . . .
269	Beh, St. . . . .	. . . . .	. . . . .	. . . . .
270	Bhuenphullee . . . . .	. . . . .	Dehli.	Neimbi. Rhinoma.
271	Bhuen pullee.	. . . . .	. . . . .	. . . . .
272	Bhuenphullee, 2nd	. . . . .	. . . . .	. . . . .
273	Bhung . . . . .	. . . . .	Dehli	Cannabis sativa.
274	Bhunug.	. . . . .	. . . . .	. . . . .
275	Patree.	. . . . .	. . . . .	. . . . .
276	Parpat, F. . . . .	. . . . .	. . . . .	. . . . .
277	Paluk ?? F. . . . .	. . . . .	. . . . .	Spinacia oleracea.
278	Putol Puthur . . . . .	. . . . .	Dehli.	. . . . .
279	Puresesooahan	Mobarkha humaraj	Himalayas	Adiantum.
280	Moobarka, F. . . . .	. . . . .	. . . . .	. . . . .
281	Moobarka.	. . . . .	. . . . .	. . . . .
282	Purseea Oahan, St.	. . . . .	. . . . .	. . . . .
283	Puror luttee, branches.	. . . . .	. . . . .	. . . . .
284	Podence, F. . . . .	. . . . .	. . . . .	. . . . .
285	Tootiyas Haroones, St.	. . . . .	. . . . .	. . . . .
286	Julneem . . . . .	. . . . .	Dehli	Herpestes Moniera.
287	Julneem, 2nd . . . . .	. . . . .	Dehli.	. . . . .
288	Jowansa . . . . .	. . . . .	India	Hedysarum Alhagi.
289	Jownchee . . . . .	. . . . .	Dehli.	. . . . .
290	Jownchee, 2nd . . . . .	. . . . .	Dehli.	. . . . .
291	Chob	Guj peepul	Nujibabad	Appears to be stem of Pothos.
292	Haaha . . . . .	. . . . .	Surat via Dehli	Given for thyme.
293	Hishweh, St. . . . .	. . . . .	. . . . .	. . . . .
294	Hullimoo . . . . .	. . . . .	Surat via Dehli.	. . . . .
295	Humama . . . . .	. . . . .	Surat	Given for anemum of ancients.
296	Humama . . . . .	. . . . .	Caulul.	. . . . .
297	Humama . . . . .	. . . . .	Dehli.	. . . . .
298	Khutsoo, St. . . . .	. . . . .	. . . . .	. . . . .
299	Khutser, St. . . . .	. . . . .	. . . . .	. . . . .
300	Khurzeen, St. . . . .	. . . . .	. . . . .	. . . . .
301	Dickamallee, F. . . . .	. . . . .	. . . . .	Gardenia lucida.
302	Durmineh, F. . . . .	. . . . .	. . . . .	. . . . .
303	Doodheh, 2nd . . . . .	. . . . .	Dehli	Euphorbia.
304	Dhoel phoollee.	. . . . .	. . . . .	. . . . .

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
305	Usna Kusmeeree.			
306	Rutunjet.			
307	Rutunjet, 2nd.			
308	Zak.			
309	Zurnub	Blahmee	Himalayas	Taxus baccatus.
310	Zuck.			
311	Zoofae, F. . . . .	. . . . .	. . . . .	Hyssopus.
312	Zoofae yabus . . . . .	. . . . .	. . . . .	Hyssopus officinalis.
313	Sal purnee . . . . .	. . . . .	Deyra Doon	Shorea robusta.
314	Sitawai, St., branches.			
315	Sudab, 2nd	Soorat, F.	Himalayas	Ruta parviflora? — graveolens? F.
316	Sudee . . . . .	. . . . .	India	
317	Surphonka . . . . .	. . . . .	India	Galega.
318	Surecooe.			
319	Sunpat, St.			
320	Singha Koolae . . . . .	. . . . .	India	
321	Shah tureh	Pit papra	India	Fumaria parviflora.
322	Shookae	Substitute given	Surat	Cratogeomys oxyacantha.
323	Toorfa . . . . .	. . . . .	Jumna	Tamarix.
324	Oosbeh mughrubee . . . . .	. . . . .	Arabia	Sarsaparilla, kind of.
325	Garikoon.			
326	Garikoon, F. . . . .	. . . . .	Peshawur	Agaricum.
327	Ghaiss.			
328	Furadon plasee . . . . .	. . . . .	. . . . .	Agrimoniae sp.
329	Foodnuj burree.			
330	Poonjee, F., stems of Koot			
331	Kush ool Zureareh	Cheritta	Dakhun	Swertia chiretta.
332	Kintooryoon . . . . .	. . . . .	India, Caubul	Polycarpaea corymbosa.
333	Kakjhunk.			
334	Kal meel.			
335	Kishun Gonar.			
336	Kulesur		Dehli	Aristolochia.
337	Koondush	Nakh chinknee . . . . .	. . . . .	Artemisia sternutatoria.
338	Kintoree.			
339	Koorand, not true, F.			
340	Khuttoo		Dehli.	
341	Oahro, St.	Stem Guj Peepul.		
342	Gurgur muneek.			
343	Gurgur muneek, 2nd.			
344	Gugundhol . . . . .	. . . . .	Doab.	
345	Gul miryun, St.			
346	Gugoo Ghroo.			
347	Geelar putta . . . . .	. . . . .	. . . . .	Laminariae sp.
348	Laltak, St.			
349	Lutopuree.			
350	Gao Zuban, St.	Ox-tongue . . . . .	. . . . .	Boraginaceae.
351	Gao Zuban Kohae.			
352	Gao Zuban, St. . . . .	. . . . .	. . . . .	A. trichodesma.
353	Lukmuna Lukmame . . . . .	. . . . .	Dehli.	
354	Mukareh . . . . .	. . . . .	Patna	Euryale Ferox.
355	Mooshk tureh.			
356	Mueda deegar			
357	Nuk Chinknee.			
358	Nah.			
359	Nirgund Baburee . . . . .	. . . . .	Dehli.	
360	Khundiath, St.			
361	Nuk Chinknee.			
362	Neel Kunthee . . . . .	. . . . .	Dehli	Ajuga.
363	Batha jooree	Ceylon moss	Lucknow	Polypodi spec.?
364	. . . . .	Leaves . . . . .	. . . . .	Gracillaria lichenoides.
365	Arnee ko pat . . . . .	. . . . .	Bengal.	
366	Bansa . . . . .	. . . . .	India	Justicia adhatoda.
367	Burkuk Shirasee.			
368	Burg Tibbut	Hoolas Cashmeeree	Cashmere	Rhododendron campanulatum.
369	Pacha Pat	Patchouli	Penang.	
370	Pulwul, F. . . . .	. . . . .	. . . . .	Cucurbitaceae.
371	Poocht burnee	Chit Kubra	India	Hedysarum alopecuroides.
372	Hinna	Mehendee	India	Lawsonia inermis.
373	Ra Senna . . . . .	. . . . .	. . . . .	Salvadora (jal) lanceolata.
374	Sadq Hindes	Tex pat	Himalayas	Laurus casia.
375	Suna . . . . .	. . . . .	. . . . .	Cassia lanceolata.
376	Senna.			
377	Senna, F. . . . .	. . . . .	Peshawur.	
378	Satur.			
379	Burg Satur . . . . .	. . . . .	Arabia	Origanum vulgare.
380	Kamohee, St. jo pun . . . . .	. . . . .	. . . . .	Phyllanthus multiflorus.
381	Kubrah.			
382	Kusoundhes . . . . .	. . . . .	. . . . .	Cassia sepbara.
383	Gugerun . . . . .	. . . . .	. . . . .	Grewia hirsuta.

FLOWERS.

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
384	Ukleel ool jibbul . . .	. . .	Delhi Surat . . .	Acacia Arabica.
385	Babool . . . . .	. . .	. . .	. . .
386	Baboonch . . . . .	. . .	Smyrna	Chamomile flowers.
387	Bukoombur . . . . .	. . .	India	Careya arborea.
388	Bunufuj . . . . .	. . .	Cashmere	Viola.
389	Bol ke phool . . . . .	. . .	. . .	. . .
390	Booree, St.	Made from pollen of bullrush.	. . .	. . .
391	Tesoo, F. . . . .	. . .	. . .	Butea frondosa.
392	Julnar	Goolanar	India	Punica granatum.
393	Gool Khueroo, F. . . . .	. . .	. . .	. . .
394	Dha . . . . .	. . .	. . .	Grislea tomentosa.
395	Zafaran . . . . .	. . .	Saffron	Crocus sativus.
396	Seotee . . . . .	. . .	. . .	. . .
397	Gooli Ghaffa, F. . . . .	. . .	. . .	. . .
398	Gooli Ghaffa . . . . .	. . .	. . .	. . .
399	. . . . .	. . .	Safflower . . . . .	. . .
400	Gool soorukh, F. . . . .	. . .	. . .	. . .
401	Goontnee . . . . .	. . .	. . .	. . .
402	Gao Zuban . . . . .	. . .	. . .	. . .
403	Moondhee . . . . .	. . .	. . .	Sphæranthus indicus.
404	Nagkesur	Nar mooshk . . . . .	. . .	Mesua ferrea.
405	Neelofer . . . . .	. . .	. . .	Nymphaea alba.

FRUITS AND SEEDS.

406	Aarghees	Zirishk	Hills	Berberis Chitra.
407	Ubhool	Hoover, Huber	St. Umritseer	Juniper berries.
408	Ubhool . . . . .	. . .	. . .	. . .
409	Ooturuj	Bijnoree neemboo	Gardens	Citron.
410	Usul	Furas	India	Tamarix dioica.
411	Usluk . . . . .	. . .	India	Vitea trifolia.
412	Oojas	Alloo Bokhara	Caulbul and Cashmere	Prunus Bokhariensis.
413	. . . . .	Alu Chumra, St.	Khorassan	Acid plum.
414	Ujmood	Arub ujwain	India	Ptychotis ajowan.
415	Ajwain . . . . .	. . .	From Dr. Christison . . . . .	. . .
416	. . . . .	Nan Khoosh . . . . .	. . .	. . .
417	Ajowan or Wull Tan, St. . . . .	. . .	. . .	. . .
418	Ehrees	Kusoomba ke kuen	India	Carthamus tinctorius.
419	Ukhburoos	Kul-gehoon	Hills and Khadir, Chilkhana.	Coix indica.
420	Arus	Birunj	Doab Canal	Oryza sativa.
421	. . . . .	Var. Bamsmutti	Doab Canal . . . . .	. . .
422	. . . . .	Birinj Peahawee, St. . . . .	. . .	. . .
423	. . . . .	Himalayan rice . . . . .	. . .	. . .
424	. . . . .	Bamsmutti . . . . .	. . .	. . .
425	Arus. Birunj Pers.	Chanwul, Dhan . . . . .	. . .	Rice.
426	Azarakee	Koochla	India, Poorub	Strychnas nux vomica.
427	Urjan . . . . .	. . .	. . .	Hill apricot.
428	As. and St. . . . .	. . .	Cashmere	Myrtus communis.
429	Asarturah	Dana	Bussorah . . . . .	. . .
430	Ufrunjuh . . . . .	. . .	Dehli and Caulbul	Urtica.
431	Ukut mukut . . . . .	. . .	India	Cesalpinia bonducella.
432	Ukleel ool mulik . . . . .	. . .	Caulbul	Melilot.
433	. . . . .	Allspice	Calcutta Bazaar	Allspice.
434	Ummoghelan	Keckur . . . . .	. . .	Acacia farnesiana.
435	Umluj	Aonla, Emblica my- robolans.	. . .	Phyllanthus emblica.
436	Unbuj	Anab, umchoor	India	Unripe fruit, dried.
437	Amchou . . . . .	. . .	Bengal . . . . .	. . .
438	Unjidan . . . . .	. . .	Surat via Dehli	Ferula assafetida.
439	. . . . .	. . .	Arabia . . . . .	. . .
440	Indjan . . . . .	. . .	. . .	. . .
441	. . . . .	St. Hingotey jo pur . . . . .	. . .	Assafetida?
442	Unjidan, 2nd . . . . .	. . .	Saharunpore Surat . . . . .	. . .
443	Unjidan, F. . . . .	. . .	Astoria in Tibet	Narthex assafetida.
444	Sir T. McNeill's . . . . .	. . .	Herat . . . . .	. . .
445	Oudung, St. . . . .	. . .	. . .	An urtica?
446	Ootungun, F. . . . .	. . .	. . .	. . .
447	Unjereh . . . . .	. . .	. . .	. . .
448	Anesoon	Aniseed	Caulbul	Applied to apium petroselinum.
449	. . . . .	. . .	Bengal	Aniseed.
450	Anesoon, F. . . . .	. . .	Umritseer . . . . .	. . .
451	Anesoon, F. . . . .	. . .	Caulbul . . . . .	. . .
452	Aneson . . . . .	. . .	. . .	. . .
453	Anoola . . . . .	. . .	India	Pimpinella involucrata.
454	Oosfenoo . . . . .	. . .	Surat . . . . .	. . .

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
455	Ootungun . . . . .	. . . . .	Lucnow.	
456	Ootungun.	. . . . .	
457	Unteh mora . . . . .	. . . . .		Helioteres.
458	Oonga . . . . .	. . . . .	India	Achyranthes aspera.
459	Ahlub . . . . .	. . . . .	Surat.	
460	Ahleluj bijwara	Hura surd.	India	Terminalia
461	Hurra takee . . . . .	. . . . .	Dr. Christison.	
462	Ahleluj Kabooloo . . . . .	. . . . .	Caulul.	
463	Ahleluj Behera, F. . . . .	. . . . .	. . . . .	Terminalia.
464	Ahleluj Behra? . . . . .	. . . . .	
465	Ahleluj usfur . . . . .	. . . . .	India	Terminalia chebula.
466	Ahleluj uswud . . . . .	. . . . .	. . . . .	Terminalia chebula.
467	Ahleluj uswud, juwa, hura juwa.	. . . . .	
468	Oorud chulaka, F. . . . .	. . . . .	
469	Oorud seeah. . . . .	. . . . .	
470	Babehce and F. . . . .	. . . . .		Psoralea corylifolia.
471	Bawurchee, St. . . . .	. . . . .	
472	Badam Cheneo . . . . .	. . . . .		Arachis hypoga.
473	Badrooj . . . . .	. . . . .	Furuckabad	Ocymum?
474	Badinjan . . . . .	. . . . .	India	Egg plant. Solanum melangena.
475	Maroo Banjun, F. . . . .	. . . . .	
476	Badian Khutai . . . . .	. . . . .	China	Star anise, Illicium anisatum.
477	Bartung. . . . .	. . . . .	
478	Bakla . . . . .	. . . . .		Bean, Faba vulgaris.
479	Bakla . . . . .	. . . . .	Gardens	Bean, Faba vulgaris.
480	Bakla, sem. . . . .	. . . . .		Dolichos sp.
481	Bakla	Shirasee.		
482	Sem . . . . .	. . . . .	Bengal.	
483	Bakla misree	Kuml ghutta		Nelumbium speciosum.
484	Badkoomb . . . . .	. . . . .	Bengal	Careya?
485	Balungoo . . . . .	. . . . .	India	Dracocephalum Boyleanum.
486	Balbecj, St. . . . .	. . . . .	
487	Beebhungar . . . . .	. . . . .	India	Vitex.
488	Bucheh tirak . . . . .	. . . . .	Bengal.	
489	Birunj Kabooloo	Bee bhirung	Nuffibabad	Embellia ribes.
490	Beibarung. . . . .	. . . . .	
491	Buryana	Khurentee		Seda.
492	Buzr Katoona . . . . .	. . . . .	India, Gardens	Plantago Isufghol.
493	Buzr, F.	Ispugol	Dehli.	
494	Bisbaseh . . . . .	. . . . .		Mace, Myristica Moschata.
495	Bistitaj . . . . .	. . . . .	Delhi.	
496	Butcekh hindeo	Turboos . . . . .	. . . . .	Water Melon, Cucurbita citrullus.
497	Buloot . . . . .	. . . . .	. . . . .	Quercus.
498	Buloot	Shah Buloot, St. . . . .	. . . . .	Quercus.
499	Buloot . . . . .	. . . . .	Surat, Acorns	Quercus.
500	Nimsorea Bukayce, St. . . . .	. . . . .		Melia Bukayun.
501	Biladur	Bhilanwa . . . . .	. . . . .	Semecarpus Anacardium.
502	Hub Balsan, St. . . . .	. . . . .	. . . . .	Balsamodendron.
503	Hub ool Balsan . . . . .	. . . . .	. . . . .	Balsamodendron Gileadense
504	Boon, F.	Kubwah . . . . .	. . . . .	Coffee, Coffea Arabica.
505	Buleluj	Behera	India	Terminalia Bellerica.
506	Banj	Ujwin Khorassanee	Dehli	Hyoscyamus niger.
507	Benda Torea, F. . . . .	. . . . .	Gardens, India	Hibiscus.
508	Bindai . . . . .	. . . . .	India	Momordica.
509	Binduk	Finduk	Hills, Hazel Nut	Corylus lacera.
510	Binduk hindeo	Reetha	India, Soap Nut	Sapindus detergens.
511	Bomaduran . . . . .	. . . . .	Surat, Dehli.	
512	Boomadur, St.	Gen madur, St. . . . .	. . . . .	An Abalothium.
513	Boee . . . . .	. . . . .	Dehli.	
514	Beej Bund . . . . .	. . . . .	Dehli.	
515	Bel geeroo . . . . .	. . . . .	. . . . .	Egle Marmelos.
516	Belgeeroe, St.	Fulghur, Katturo. . . . .	. . . . .
517	Bol. . . . .	. . . . .	
518	Buengun jungleo . . . . .	. . . . .	Dehli	Solanum.
519	Bhung Pubaree, F.	Hemp seed	Teree, Himalaya	Cannabis sativa.
520	Bhenjaree . . . . .	. . . . .	. . . . .	Zizyphus?
521	Padul . . . . .	. . . . .	India	Bignonia suaveolens.
522	Loll Paluk, F. . . . .	. . . . .	. . . . .	Spinage.
523	Paluk, F. . . . .	. . . . .	
524	Phaphra, F. . . . .	. . . . .		Buckwheat.
525	Papeeta . . . . .	. . . . .	St. Ignatius Bean	Strychnos Ignatia.
526	Purusphul . . . . .	. . . . .	. . . . .	Lagerstromia?
527	Pulaa Papreh . . . . .	. . . . .	. . . . .	Butia frondosa.
528	Punwar	Chukonda . . . . .	. . . . .	Cassia Tora.
529	Petha . . . . .	. . . . .	Indian Pumpkin	Cucurbita Pepo.
530	Petha, F. . . . .	. . . . .	
531	Phulwa . . . . .	. . . . .	Almora	Bassia butyracca.
532	Peloo . . . . .	. . . . .	Hansai	Capparia aphylla.
533	Peeaz . . . . .	. . . . .		Onion, Allium cepa.
534	Peepul	Dar Fifiil	Bengal	Piper longum.
535	Punir jo fotah, St . . . . .	. . . . .	
536	Tal mookhana . . . . .	. . . . .	India	Barleria longifolia.
537	Tal mukhana. . . . .	. . . . .	

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
538	Siah Tal mokhana.			
539	Turboos, F.			
540	Tuk marya.			
541	Turyak, St.			Inside husk of Areca.
542	Pecaranga		Bengal.	
543	Tushmeesuj	Chaksoo	Deyra Dhoon	Cassia acacalia.
544	Toorunj			Citron rind.
545	Toorunj			
546	Toormus.			White lupin, <i>Lupinus albus</i> .
547	Tumr	Choochara		Date, <i>Phoenix dactylifera</i> .
548	Tumr hisdee			Tamarind, <i>Tamarindus indica</i> .
549	Tuntereeh	Marwar	India	<i>Rhus parviflorum</i> .
550	Toree seeah	Kalee toree.		
551	Toree ghia		India	<i>Luffa acutangula</i> .
552	Toree tulkh			<i>Luffa pentandra</i> .
553	Todree suffed	Kurwee toree		<i>Cheiranthus cheiri</i> .
554	Todree soorkh, F.			<i>Cheiranthus</i> .
555	Todri soorkh, St.			Malva.
556	Todree Zurd		Caulbul, India	<i>Cheiranthus</i> .
557	Toreeah, F.			Sinapis.
558	Tor, F.			<i>Cytisus Cajan</i> .
559	Toon, F.			<i>Cedrela Toona</i> .
560	Thy gul.			
561	Teen		Caulbul	Fig, <i>Ficus Carica</i> .
562	Tent			<i>Capparis aphylla</i> .
563	Jamphul		Surat.	
564	Jamun, F.			<i>Eugenia</i> .
565	Jawarus	Bajra	India	<i>Panicum spicatum</i> .
566	Jurjur	Tirehtizak	India	<i>Moricandia tira</i> .
567	Jazur	Gagur		Carrot, <i>Daucus Carota</i> .
568	Jous	Ukhroot	Himalayas	Walnut, <i>Juglans regia</i> .
569	Jous ool suroo		Hills	<i>Cupressus sempervirens</i> .
570	Jous ool Kitah		Arabia	<i>Solanum</i> sp.
571	Jous ool Kue	Muenphul		<i>Posoqueria dumetorum</i> .
572	Jous ool Kue, F.	Muenphul		<i>Posoqueria</i> .
573	Jous boa	Juephul	Spice Islands	Nutmeg, <i>Myristica moschata</i> .
574	Jous boa			Wild nutmeg, <i>Myristica tomentosa</i> .
575	Jous roomee		Surat	<i>Zizyphus</i> sp.
576	Jous masil	Dhatorea	India	<i>Datura metel</i> .
577	Dhatorea suffed.			
578	Jous masil uswud	Kala dhatorea	India	Substitute for <i>Datura fastuosa</i> .
579	Jeeapota		India	<i>Nageia Putranjiva</i> .
580	Chah		China	<i>Thes viridis</i> .
581	Chimoti suffed, St.			
582	Chaoomooogra			<i>Choudmooogra odorata</i> .
583	Hasha, F.			Substitute for Thyme.
584	Hub ool Ban		Surat via Dehli	<i>Melia sempervirens</i> .
585	Hub ool Ban.			
586	Hub ool Khisra			<i>Pistacia terebinthus</i> .
587	Hub ool Zulma	Hub Zalam, St.		
588	Hub ool Sumneh			<i>Buchanania latifolia</i> .
589	Hub ool Ghar			<i>Laurus nobilis</i> .
590	Hub ool Koolut		Himalayas Cult.	Dolichos.
591	Hub ool Koolkool			<i>Cardiospermum Halicacabum</i> .
592	Hub ool mujjullub		Almora	<i>Rhus</i> .
593	Hub ool neel			<i>Ipomoea cœrulea</i> .
594	Hirf	Halim		<i>Lepidium sativum</i> .
595	Hoormul ishoree			<i>Peganum harmala</i> .
596	Hoormal	Ispund, F.		<i>Corchorus capsularis</i> .
597	Hussuk	Gokroo Dukhunees		<i>Pedaliu murex</i> .
598	Hussuk, 2n i	Gokhroo		<i>Tribulus lanuginosus</i> .
599	Hoolbeh	Methee		<i>Trigonella foenugrecum</i> .
600	Himaz	Pulkee		<i>Rumex undulatus</i> .
601	Gul Himaz, St.			
602	Gul Himaz, St.			
603	Humus abiaz	Chuna Kaboollee		Cicer arietinum.
604	Humus ahmur	Lal Chuna		Cicer arietinum.
605	Kasnee		India	Chicory; <i>Cicerium intybus</i> .
606	Kasnee siah		Surat.	
607	Hintch	Gehoon		<i>Triticum hybernum et Æstivum</i> .
608	Kakshee, St.			
609	Khoobanee, F.			Dried apricots.
610	Hunzil, F.	Andorain		<i>Cucumis Colocynthis</i> .
611	Khoob-bazee			<i>Malva rotundifolia</i> .
612	Khurbooz, F.			<i>Cucumis melo</i> .
613	Post Khurbooz			Rind of melon.
614	Khoobeh, Khoob Kulan			<i>Sinapis pusilla</i> .
615	Khirfee			
616	Khurdul raee			<i>Sinapis nigra</i> .
617	Khurnoob Shamee		Carobs	<i>Cerastoda Siliqua</i> .
618	Khurnoob noobtee			Cassia.
619	Khiroa	Urundee		<i>Ricinus communis</i> .
620	Khiroa, F.	Arundee, F.	India.	
621	Khus	Kahor		<i>Lactuca sativa</i> .

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
622	Khush Khush abiaz . . .	Post . . . . .	. . . . .	<i>Papaver somniferum</i> .
623	Khush Khush uswud . . .	Hnsara . . . . .	. . . . .
624	Khunjuk, St.			
625	Khutnee			<i>Althæa rosea</i> .
626	Khilaf	Bed mooshk		<i>Salix Ægyptiaca</i> .
627	Khandroos	Mukkee	Indian corn	<i>Zea Mays</i> .
628	Mukkee soorkh.			
629		Amultas		<i>Cassia fistula</i> .
630	Gool-i-dar cheenee, F. . .		Peshawur	<i>Cinnamomum aromaticum</i> .
631	Darim	Naspal	Himalayas	<i>Punica granatum</i> .
632	Anak Danah, F.		Himalayas	
633	Darum			<i>Punica granatum</i> .
634	Danuj abrooj		Surat	
635	Dukhun			<i>Panicum miliaceum</i> .
636	Dardab			
637	Dund	Jumalgotta		<i>Croton Tiglium</i> .
638	Doodsee			<i>Euphorbia hirta</i> .
639	Dhunuttur			<i>Clitoria ternatea</i> .
640	Dak papra, F.			<i>Bates frondosa</i> .
641	Dek			<i>Zizyphus</i> .
642	Doukoo	Unjidan		<i>Ferula, sp.</i>
643	Unjidan		Cashmere	
644			Cashmere	
645	Dookoo, F.			
646	Dookoo, F.		Delhi	
647	Dindana			Compositæ.
648	Dundanah		Umritseer, Peshawur.	
649	Zurt			<i>Sorghum vulgare</i> .
650	Ra sunns, F.		Fruit found along with the leaves.	<i>Bertholletia ?</i>
651	Ram putree			<i>Myristica</i> .
652	Ramputtree, St.		False mace. Picked	Often in a whole basket only broken mace.
653	Raunee		Bengal	Umbellifere.
654	Roodrachai			<i>Eleocarpus Ganitrus</i> .
655	Ruwaseen	Jeret		<i>Æschynomene Sebaen</i> .
656	Reez			
657	Zubeeb			Raisins.
658	Zubeeb ool jibbul	Given for stavesacre.		<i>Delphinium Staphisagria</i> .
659	Zuhr mor			Leguminosæ.
660	Zuhr, another kind.			
661	Zuctoon			
662	Saj		India. Teak	<i>Olea zytoon</i> .
663	Sai			<i>Tectona grandis</i> .
664	Saumsach, F	Sauwak		<i>Shorea robusta</i> .
665	Sagoo Danah		Calcutta	<i>Panicum</i> .
666	Sang		Hansi	
667	Sapistana			<i>Cordia Myxa</i> .
668	Sudab			<i>Ruta graveolens</i> .
669	Tookhm-l-sudab, F.		Caulul	
670	Tookhm-l-sudab, F.		Kabool	
671	Surshuf			<i>Sinapis dichotoma</i> .
672	Surson		Bengal	
673	Surwari			<i>Celodia argentea</i> .
674	Sufur jul	Beh dana	Quince	<i>Pyrus cydonia</i> .
675	Bih Dana			
676	Safuk	Chookundur		<i>Bete vulgaris</i> .
677	Sumak	Kungnee		<i>Panicum italicum</i> .
678	Sumak	Toong	Hill's	<i>Rhus</i> .
679	Soomak, 2nd			<i>Rhus coriaria</i> .
680	Semsin Safaed	Til		<i>Sesamum orientale</i> .
681	Semsin	Til	Saharunapore,	
682	Sumundur phul			<i>Barringtonia acutangula</i> .
683	Sumundur phul			
684	Sumundur sokh		Khadir	
685	Sun			<i>Hibiscus cannabinus</i> .
686	Sunee-ke-beej			
687	Suna			
688	Sinjnd		Cashmere	<i>Eleagnus sinjnd</i> .
689	Soomrakh			Compositæ.
690	Soolfa			Umbellifere.
691	Suns rooe		Dehil	Portulacæ.
692	Singhara			<i>Trapa hispinea</i> .
693	Sonf	Razceanuj		<i>Pimpinella anisum</i> .
694	Southee, F.		Saharunapore	
695	Sham Foondree, F.			
696	Suhunja ke beej			<i>Hyperanthera moringa</i> .
697	Sch			<i>Melus communis</i> .
698	Seesaliyoon			Umbellifere.
699	Semb, F.			Leguminosæ.
700	Send, F.		India	Cucurbitacæ.
701	Shakhun	Urhur		<i>Cytisus bicolor</i> .
702	Shakhun	Tor		<i>Cytisus injau</i> .
703	Shaneh dushtee			<i>Sida indica</i> .

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
704	Shahtureh, St.			Barley.
705	Shahr, F.	Jao . . . . .	. . . . .	Ocimum pilosum.
706	Shah husfur	Riban . . . . .	. . . . .	Anethum sowa.
707	Shublit . . . . .		. . . . .	Bigonia indica.
708	Shubbo nak	Urloo	India	Oryzum?
709	Shurbutte . . . . .		. . . . .	Custard apple, Anona squamosa
710	Shureefa . . . . .		. . . . .
711	Shookakae			
712	Shulgum		Turnip	Brassica rapa.
713	Shuogund		Himalay-s.	
714	Shounes	Kalonjee		Nigella indica.
715	Zaur Satur, St.			
716	Sunobur	Chilgosa and St.	Himalayas	Pinus (Neosa) Gerardiana.
717	Sundul soorkh	Ruckut chundum		Adenanthora paroniana.
718	Adus		Mussooree	Ervum hirsutum.
719	Anab		Cashmere	Zizyphus.
720	Anab ool salib			Solanum nigrum.
721	Aod auleeb, F.		Peshawur from Iran.	
722	Tookhm (j)haia			
723	Gool Ghafia		Agrimony	Composite.
724	Fagherah		Himalayas	Xanthoxylon.
725	Fuj		India	Radish, Raphanus sativus.
726	Furunj mooshk			
727	Furunj mooshk, 2nd sort.			
728	Furunj mooshk, 3rd sort.			
729	Fistuk	Pista	Caulul.	
730	Gool Pista, F.		Umritseer.	
731	Fiturassaliyoon, F.			Prangos pabularia.
732	Fiturassaliyoon	Another kind.		
733	Filfil abla		White pepper	Piper nigrum.
734	Filfil uswad		Black pepper	Piper nigrum.
735	Foful		Bengal beetle nut	Areca Catechu.
736	Foful Dukhnee, F.	Chiknee soopiarce		Areca.
737	Fofil Duknee, or Hindes, St.			
738	Kakieh saghar	Chotee elaches	Malabar cardamoms	Elettaria cardamomum.
739	Kakleh Kubar		Bengal cardamoms	Alpinia?
740	Kisab	Kukree		Cucumis utilitissimus.
741	Kussud	Kheera	Cucumber	Cucumis sativus.
742	Kheera Kherah, F.			
743	Tukhm Badrunj, St.			Cucumis.
744	Kirdmana			
745	Kirdmana, 2nd		Surat.	
746	Kirasoea		Cherry	Pruus Cerasus.
747	Kira	Kuddoo tulkh.		
748	Kira, 2nd, F.	Kuldeo meetha.		
749	Kootun	Bunola	Cotton	Gossypium indicum.
750	Kootun Bagheche		New Orleans cotton	Gossypium barbadense.
751	Kumbela			Rottlera tinctoria.
752	Kajoophul			
753	Kakunj			
754	Kakunj peshanree			
755	Kakunj, F.			
756	Ka Peru, St.			Solanum.
757	Kalee seeres		Himalayas	Serratula anthelmintica.
758	Kana bij, St.			
759	Kubab cheene			Piper Cubeba.
760	Kutan	Ulae		Linum usitatissimum.
761	Kutae buzoorg			Solanum indicum.
762	Kutuelce, F.			Solanum.
763	Kuthi Khoord	Kuthuelee		Solanum Jacquinil.
764	Kutura			
765	Kuthul			Artocarpus integrifolia.
766	Kuchera, F.			Cucumis?
767	Korrae	Pocazce		Allium porrum.
768	Kuruf		Room	Apium graveolens.
769	Kirmulee		Dehli.	
770	Kirvia		Subs. for Carum carui	
771	Karela		India	Cucurbitacea.
772	Kurheey			
773	Kuseereh	Dhunya	India	Coriandrum sativum.
774	Kuchoria			
775	Kussonndhee, F.			Cassia sophora.
776	Kisteh			Apnil?
777	Kisht bur Kisht	Muen phulle		Helieteres scabra.
778	Kusoo	Ughas bel ke beej	Caulul	Cuscuta.
779	Kushoe, St.			Cuscuta.
780	Kulhuttee, St.			
781	Kulhuttee, St.		White kind.	
782	Kumazroos			
783	Kumangla			
784	Kumoon	Zeera sech	Kunawur	Carum nigrum.
785	Kumoon suffed		Cumin	Cuminum Cymium.
786	Kunkoth	Langett	Dehli	Ximonia egyptica.
787	Kunkol mirch		Dukhan.	

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
788	Kunkol mirch . . . .	. . . .	Dukhun.	
789	Kunowcheh	Ki ^{wa} anch	India	Carpopogon pruriens.
790	Koonchee . . . . .	. . . . .	India.	
791	Koonchee. . . . .	. . . . .	
792	Kunotha? . . . . .	. . . . .	Bengal	Leguminosæ.
793	Kunotha? suffed . . . .	. . . . .	Bengal	Leguminosæ.
794	Koonchee. . . . .	. . . . .	
795	Kungnee . . . . .	. . . . .		Panicum miliaceum.
796	Koda, F. . . . .	. . . . .	Saharunpore	Paspalum scrotialatum.
797	Kawul gutta, F. . . . .	. . . . .	. . . . .	Nelubium speciosum.
798	Khush Khush . . . . .	. . . . .	. . . . .	Poppyhead.
799	Kirnee, F. . . . .	. . . . .	. . . . .	Mimosa Elengi.
800	Kuhodia metha.			
801	Kuhodia methee	Kuel ka kullee.		
802	Kueth . . . . .	. . . . .	India	Feronia elephantum.
803	Kunsonla . . . . .	. . . . .	Patna.	
804	Kinro, St.			
805	Kinro, St.			
806	Gowmadur, St.			
807	Hubool triuneh.			
808	Guj peepul . . . . .	. . . . .	. . . . .	Pothas.
809	Gul mishkun . . . . .	. . . . .	. . . . .	Pterospermum.
810	Gundunah, F. . . . .	. . . . .	. . . . .	Anthericum.
811	Goondar phul, St.			
812	Gehoonle.			
813	Ghoonchee suffed . . . .	. . . . .	. . . . .	Abrus precatorius.
814	Ghonchee seul.			
815	Lajwuntee . . . . .	. . . . .	India	Mimosa.
816	Lissan ool Huml	Bartung.		
817	Lis-an ool Asafeer. . . .			
818	Lowz	Badum i shereen . . .	Caubul	Amygdalus communis.
819	Lowz	Badam i tulkh	Caubul	Amygdalus communis var. amara.
820	Mal kungnee . . . . .		. . . . .	Celastrus nutans.
821	Mahlib, St. Scindee . . .	Gowla in Bombay, St.		
822	Mahmoodah, St.			
823	Mahee zuhuruj . . . . .	. . . . .	. . . . .	Cocculus indicus.
824	Muttur mushung, F. . . .			
825	Murshahy . . . . .	. . . . .	. . . . .	Ipomæa.
826	Mirch soohh . . . . .	. . . . .	. . . . .	Capsicum frutescens.
827	Moomiyæ, St.			
828	Mukoh, F. . . . .	. . . . .	. . . . .	Solanum indicum?
829	Mukur zullee.			
830	Mukhareh . . . . .	. . . . .	. . . . .	Euryale ferox.
831	Mundwa . . . . .	. . . . .	. . . . .	Eleusine.
832	Motha . . . . .	. . . . .	Saharunpore	Phaseolus.
833	Moong . . . . .	. . . . .	Saharunpore	Phaseolus.
834	Wood.			
835	Nargeel . . . . .	. . . . .	. . . . .	Cocos nucifera.
836	Nag kesur	Narmooshk . . . . .	. . . . .	Mesua ferrea.
837	Nag kesur, St. . . . .	. . . . .	. . . . .	Cassia buds.
838	Narunga.			
839	Nankwah	Ujwain . . . . .	. . . . .	Ligusticum ujwain.
840	Wapoombs, St. . . . .	. . . . .	. . . . .	Careya arborea.
841	Nermullee . . . . .	. . . . .	. . . . .	Strychnos potatorum.
842	Noog	Kala til and Ramtil .	Abyssinia	Guizotia olifera.
843	Neemb . . . . .	. . . . .	. . . . .	Melia Azadirachta.
844	Ward	Goolab . . . . .	. . . . .	Rosa Damascena.
845	Wunga Tukhm, St. . . . .	. . . . .	. . . . .	Cucurbitaceæ.
846	Wusari Meuh, St			
847	Halim, F. . . . .	. . . . .	. . . . .	Lepidium.
848	Hoolhool . . . . .	. . . . .	. . . . .	Cleome pentaphylla.
849	Hulyoon . . . . .	. . . . .	. . . . .	Asparagus officinalis.
850	Hulyoon Tookhm.			

GALLS.

851	Buz-ghunj . . . . .	. . . . .	. . . . .	Pistachia galls.
852	Khimsuh . . . . .	. . . . .	. . . . .	Pistachia.
853	Mahee. . . . .	. . . . .	. . . . .
854	Sakun, St. . . . .	. . . . .	. . . . .	Tamarisk.
855	Mahee Khoord. . . . .	. . . . .	. . . . .
856	Sumrat ool toorfa	Buree muce . . . . .	. . . . .	Tamarisk.
857	Mue.			
858	Sumur Kokla . . . . .	. . . . .	Poorub.	
859	Shukur teeghal . . . . .	. . . . .	. . . . .	Asclepias gigantea.
860	Ufus nijjer phul . . . . .	. . . . .	. . . . .	Quercus.
861	Kakra singee . . . . .	. . . . .	Kalsee	Rhus.
862	Kakra singhee.			

GUMS, RESINS, AND GUM RESINS.

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
863	Ooshuk (ammoniacum)	Kandurooskh . . .	Caulbul . . .	Dorema ammoniacum.
864	Unzeroot . . .	Sarcocolla . . .	Surat Hills . . .	Pensea Sarcocolla.
865	Bar-zud birceja . . .	Galbanum . . .	Surat Hills . . .	Bubon Galbanum.
866	Puddum ke gond . . .	. . .	S. B. G. Hills . . .	Prunus puddum.
867	Puchdhara gond . . .	. . .	S. B. G. . . .	Euphorbia antequorum.
868	Toorunjbeen . . .	Persian manna . . .	Caulbul . . .	Alhaji Maurorum.
869	Toon ke gond . . .	. . .	India . . .	Cedrela Toona.
870	Huzceez Mukke . . .	A kind of benzoin . . .	Surat . . .	
871	Jawasheer . . .	Opoponax . . .	Arabia . . .	Pastinaca Opoponax.
872	Jingun ke gond . . .	Kunnee gond . . .	Khera Pass . . .	Icica resinifera.
873	Dum ool Akhwain . . .	Dragon's blood . . .	Surat. Arabia . . .	Dracæna Draco.
				Pterocarpus Draco.
874	Rateeanuj . . .	Colophony . . .	Surat . . .	
875	Zoof . . .	Resin . . .	Room . . .	
876	Saleh ke gond . . .	Koondur . . .	Khera . . .	Boswellia serrata.
877	Sukmoonya . . .	Scammony . . .	Surat . . .	Convolvulus Scammonia.
878	Sukmoonya, 2nd . . .	. . .	Surat . . .	
879	Sukbeenuj . . .	Sagapenum . . .	Arabia . . .	Ferula persica.
880	Soondroos . . .	Copal . . .	Marwar . . .	
881	Soondroos, 2nd . . .	. . .	Africa . . .	
882	Sohunje ke gond . . .	. . .	India . . .	Hyperanthera Moringa.
883	Siriss ke gond . . .	. . .	India . . .	Mimosa Serissa.
884	Sem ke gond . . .	Gota gond . . .	Deyra and Rajpore . . .	Bauhinia gumnifera.
885	Sembul ke gond . . .	Mochrus . . .	India . . .	Bombax heptaphylla.
886	Elwa . . .	. . .	. . .	Aloa perfoliata.
887	Ungoor ke gond . . .	. . .	. . .	Vitis vinifera.
888	Sumugh Araba . . .	. . .	Arabia . . .	Acacia vera.
889	Ulk-ool-buttum . . .	Chio turpentine . . .	Surat . . .	Pistacia Terebinthus Umritseer.
890	Firflyom . . .	Euphorbium . . .	Arabia . . .	Euphorbia.
891	Karch . . .	Raf . . .	Kherce . . .	Shorea robusta.
892	Kirasia . . .	Cherrygum . . .	Surat . . .	Prunus Cerasus.
893	Kuteera . . .	Gond . . .	Khera Pass . . .	Bombax gessypinum.
894	Koondur olibanum . . .	Loban . . .	Surat . . .	Cochlospermum.
895	Koondur olibanum, 2nd . . .	. . .	Poonub . . .	
896	Kunnee gond . . .	. . .	. . .
897	Kumarkus . . .	Dhak ke gond . . .	India . . .	Butea frondosa.
898	Koondroo . . .	Saleh ke gond . . .	Almora . . .	Boswellia serrata.
899	Khuer ke gond . . .	. . .	Deyra . . .	Acacia Catechu.
900	Googlee . . .	. . .	Hills . . .	
901	Ladun . . .	Labdanum . . .	Surat . . .	Cistus ladaniferus.
902	Look . . .	Gum lac . . .	Deyra, &c. . . .	Coccus lacca.
903	Moor (bol) . . .	Myrrh . . .	Surat . . .	Balsamodandra.
904	Zurdaloo . . .	Kegond . . .	S. B. G. Hills . . .	Prunus choooloo.
905	Mustagee . . .	Mastick . . .	Caulbul . . .	Pistacia lentiscus.
906	Mookul . . .	Googul Bdellium . . .	. . .	Amyris agolleche.
907	Mookul, 2nd . . .	Googul, 2nd . . .	Hills . . .	
908	Naguoree gond . . .	. . .	Nagora . . .	Alalle archea.
909	Nishasteh . . .	. . .	Mirzapore . . .	

MINERAL KINGDOM.

1	Abar . . .	{ Seesa ke rakh. Seesa jullahoon (burnt lead.) }	India . . .	Oxide of lead.
2	Ulree . . .	Yellow tertiary . . .	Juepore . . .	Limestone.
3	Ulree, 2nd . . .	. . .	Surat . . .	Limestone.
4	Ubkur . . .	Shora . . .	India . . .	Nitrate of potash.
5	Uswud . . .	Soornec . . .	Kurpaul . . .	Sulphuret of lead.
6	Uswud, 2nd . . .	Soorma . . .	Caulbul . . .	Sulphuret of antimony.
7	Uswud suffed . . .	Soorma suffed . . .	Caulbul . . .	Calcareous spar.
8	Ajur . . .	Purance aent ke khora . . .	India . . .	Old bricks impregnated with sa- line matter.
9	Isfidaj . . .	Suffeda . . .	Furruka bad . . .	White lead.
10	Isfidaj, 2nd . . .	{ Suffeda kash. kunce. — kas kurce. v. }	Surat . . .	
11	Ermance . . .	. . .	Surat . . .	Serpentine opal.
12	Barood . . .	. . .	India . . .	Gunpowder.
13	Bokhrar . . .	. . .	Surat . . .	Opal, striped.
14	Birunj . . .	Peetul . . .	India . . .	Brass.
15	Birorj . . .	. . .	Tanktoda . . .	Selenite.
16	Bilor . . .	. . .	Dehlee . . .	Quartz crystal.
17	Bilor, 2nd . . .	. . .	Pegu . . .	Calcareous spar.
18	Borruk . . .	Boorch yermanee . . .	Arabia . . .	
19	Bhurut . . .	. . .	Surat . . .	Green carbonate of lime.
20	Pa . . .	. . .	Dukhun . . .	Fibrous alum with green sulphate of iron.
21	Padauhr . . .	Zuhr. mohra . . .	Calcutta . . .	Serpentine, v. Herbert's acct.

No.	—	Synonyms.	Places whence Obtained	Scientific Names, &c.
22	Padzahr suffed	Suffed zuhr. mohra	Surat	Lithomarge.
23	Padzahr seesh	Seah zuhr. mohra	Benares	Dark green serpentine.
24	Patoonia . . . . .	. . . . .	Khimes	Heliotrope.
25	Patoonia, 2nd . . . .	. . . . .	Surat	Serpentine.
26	Pista . . . . .	. . . . .	Kangra	Green felspar.
27	Paluta . . . . .	. . . . .	Juepore	Bloodstone.
28	Pulewa . . . . .	. . . . .	Juepore	Clay slate.
29	Pindol . . . . .	. . . . .	Chulkhana	White clay.
30	Pokhray . . . . .	. . . . .	Surat	Opal beryl?
31	Peores . . . . .	. . . . .	Matrass	Light clay coloured by vegetable matter.
32	Toormulee zurd . . . .	. . . . .	Surat . . . . .	. . . . .
33	Toormulee, 2nd . . . .	. . . . .	Surat . . . . .	. . . . .
34	Toormulee, 3rd . . . .	. . . . .	Pegu . . . . .	. . . . .
35	Toormulee subz . . . .	. . . . .	Pegu . . . . .	. . . . .
36	Toormulee suffed . . . .	. . . . .	Pegu . . . . .	. . . . .
37	Toormulee suffed . . . .	. . . . .	Surat . . . . .	. . . . .
38	Toormulee seesh . . . .	. . . . .	Pegu . . . . .	. . . . .
39	Tillur pathur . . . . .	. . . . .	Kassypore	Hornblende quartz.
40	Tincal	Sohaga	Noodurpore	Borax.
41	Tincal, 2nd	Sohaga tellia (oily)	Noodurpore	Borax.
42	Tobal	Muel tambak	India	Dross of copper
43	Tootya	Necia thothia	Marwar	Sulphate of copper.
44	Tootya haroonce . . . .	. . . . .	Arabia . . . . .	. . . . .
45	Tootya subz	Goozuratee	Guzerat . . . . .	. . . . .
46	Tippus . . . . .	. . . . .	Surat . . . . .	. . . . .
47	Juokhar . . . . .	. . . . .	Dehlee	Carbonate of potash.
48	Choonee pl. choonya . .	. . . . .	Surat	Spinelite ruby.
49	Hijr (stone)	No name	Surat	Graphite.
50	Hijr-urmunee . . . . .	. . . . .	Arabia	Red jasper.
51	Hijr-ool-hudeed . . . .	. . . . .	Caubul	Iron ore.
52	Hijr-ool-hudeed, 2nd . .	. . . . .	Hills	Iron ore.
53	? . . . . .	. . . . .	Surat	Iron ore.
54	Hijr-ool-sitar	Sung sitara	Surat	Avanturine?
55	Hijr-ool-sitar, 2nd . . .	. . . . .	Dehlee, B. . . . .	. . . . .
56	Hijr-ool-simak . . . . .	. . . . .	Dukhun	Granite porphyritic.
57	Hijr-ool-simak	Oonabee	Dukhun	Porphyry.
58	Hijr-ool-simak	Kirmizee	Mecce	Porphyritic jasper.
59	Hijr-ool-ajalb . . . . .	. . . . .	Surat	Milky quartz.
60	Hijr-ool-Eesa . . . . .	. . . . .	Dehlee, B.	Serpentine.
61	Hijr-ool-khuttoo . . . .	. . . . .	Surat	Limestone (Joesalmere limestone).
62	Hijr-ool-mahuk	Kusoutee	Dukhun	Touchstone (dinty slate)
63	Hijr-ool-murium . . . .	. . . . .	Dehlee, B.	Tertiary limestone v. Voysey, used in tomb of Secundra.
64	Hijr-ool-murium, 2nd . .	. . . . .	Caubul	Coarse grained quartz.
65	Hijr-ool-muknatees . . .	Choombuk	Dehlee (to wallor)	Londstone.
66	Hijr-ool-moosa	Tilia koorund	Hurdwar . . . . .	. . . . .
67	Hijr-ool-meena	Kanch	Surat	Glass.
68	Hijr-ool-meena, 2nd . . .	. . . . .	Surat . . . . .	. . . . .
69	Hijr-ool-nan	Chukmak	Surat	Quartz, substit. for flints.
70	Hijr-ool-yusheb	Sung eeshum	Caubul	White compact quartz.
71	Hijr-ool-yusheb abruz . .	Sung eeshum suffed	Caubul	White compact quartz.
72	Hijr-ool-yusheb ukhzur .	Sung eeshum subz	Caubul	Chalcedonic quartz.
73	Hijr-ool-Yahodee	Sung yahoodaus	Arabia	Lapis judaicus; fossil spine of an echinus.
74	Hudeed	Kherree loha	Dukhun	Iron of superior quality.
75	Hudeed ispat	Ispat	Surat	Steel
76	Kharuk . . . . .	. . . . .	Surat	Crystals of calcareous spar. Chalcedony also given.
77	Khirumjee . . . . .	. . . . .	Hills	Quartz pebble.
78	Dardoor . . . . .	. . . . .	. . . . .	Clay slate.
79	Dookhya . . . . .	. . . . .	Surat	White agate.
80	Duchauj	Dana sirung	Surat	Malachite; acetate of copper.
81	Dhoonuela . . . . .	. . . . .	Surat	Topaz? smoky quartz.
82	Dhedhee . . . . .	. . . . .	Surat	Touchstone.
83	Rutwad . . . . .	. . . . .	Surat	Red jasper; red clay-stone.
84	Ruskupoor . . . . .	. . . . .	Dukhun Poorub	Submuriate of mercury.
85	Risus abruz	Ranga	Poorub	Tin.
86	Risus nswud	Seesa	Hills	Lead.
87	Roosukhtuj	Tamba julla hoos	Surat	Impure oxide of copper.
88	Rowlee . . . . .	. . . . .	Dehlee	A compound made with huldee, soap, &c., used in making the tikka.
89	Rooc	Kansee	India	Bell metal.
90	Zubur jud . . . . .	. . . . .	Surat	Impure emerald.
91	Zijaj	Kanch	India	Glass.
92	Zurueekh suffed . . . . .	. . . . .	Poorub	Selenite.
93	Zurueekh soorkh	Mussul	Dukhun	Red orpiment; red sulphuret of arsenic.
94	Zurueekh zurd . . . . .	. . . . .	Dukhun	Yellow orpiment.
95	Zurueekh tabkee	Yellow	Dukhun	Yellow realgar.
96	Zamurood . . . . .	. . . . .	Purna	Emerald.
97	Zamurood toddee . . . .	. . . . .	Herat	Emerald, or cat's eye?
98	Zinjar	Zungar	Agra	Verdigrise.

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
99	Zunjuf	Shungruf	Poorub	Cinnabar.
100	Nar	Foulad kooshteh	India	Oxide of iron.
101	Shijree		Surat	Chalcedonic pebble.
102	Surunj	Sundoor	Calcutta	Red lead; minium.
103	Sulajeet		Hills	Bitumen; impure, burns with slight flame.
104	Sulajeet, 2nd		Hills	Coal.
105	Dar shikna	Soolemanee	Surat	Onyx.
106	Soolemanee		Surat	Fibrous alum.
107	Sung-par		Caubul, Mushapoor	Jet.
108	Se		Surat	Pot-stone; talcaceous schist?
109	Sung saffee		Dehlee	Calcareous spar.
110	Sung jurahut	Suffed soorma	Dehlee	Alum.
111	Sung jurahut, 2nd		Hills	Egyptian stone?
112	Sung misree		Caubul	Egyptian stone?
113	Sung Misree, 2nd		Surat	Smoky quartz.
114	Sonailah		Surat	Talcaceous schist?
115	Set khurree		Hills	Carbonate of lime, coloured by carbonate of iron, with a nucleus of calcareous crystals.
116	Shudnuj udsee		Arabia	White alum.
117	Shub yemanee abiuz	Phitkhurru suffed	Poorub	Red alum.
118	Shub yemanee ahmur	Phitkhurru soorukh	Peshawur	Greenish alum.
119	Shub yemanee ukhzur	Phitkhurru subz	Keworee	Zinc.
120	Shibbeh	Just	Arabia, Poorub	Oxide of zinc.
121	Shibbeh mohrik	Justjulle hooa	India	White chalcedony.
122	Shurbutte		Caubul	White oxide of arsenic.
123	Sumb ool far abiuz	Simbul khar suffed	Caubul	Red sulphuret of arsenic.
124	Shumb ool uhmur	Simbul khar soorukh	Caubul	Yellow sulphuret of arsenic.
125	Shumb ool usfur	Simbul khar zurd	Caubul	Lahore soap.
126	Sabon	Lahoree	Lahore	Tabasheer.
127	Tabasheer	Bans lochun	India, Poorub	White mica.
128	Tulk abiuz	Ubruk suffed	Dukhun	Burnt mica.
129	Tulk kooshteh	Ubruk mara hova		Black mica.
130	Tulk ushud		Sermona	Red clay, or clay slate.
131	Teen uhmur	Geero	Gwalior	Green earth.
132	Teen ukhzur	Gil subz subz mustee	Dehlee	Armenian bole? lithomarge.
133	Teen armenee	Gil urmune	Arabia	Yellow clay; lithomarge.
134	Teen Daghistanee		Surat	Whitish clay.
135	Teen Gunjnee	Mooltanee muttee	Lahore	Cyprus earth; S. Q. 2, 2, lithomarge, with muriate of soda.
136	Teen Kibrusee			Red clay slate.
137	Teen mukhtoom		Surat	Yellow clay slate.
138	Teen usfur	Zurd muttee	Caubul	Variegated limestone, with organic remains.
139	Ajooba		Dukhun	Cornelian.
140	Akeek		Surat	Common agate.
141	Akeek, 2nd		Surat	White cornelian.
142	Ghoree		Surat	Agate.
143	Ghoree, 2nd			
144	Ghoree, 3rd			
145	Ghoree, 4th			
146	Firosuj		Bokhara	Turquoise.
147	Firosuj, 2nd			
148	Kufr ool yahood		Surat	Asphaltum; Jew's pitch.
149	Kullee abiuz	Sujjee muttee	Batandur N. of Saharunpore	Carbonate of soda.
150	Kullee ahmur, 2nd			Impure
151	Kullee ushud			Fine-grained slate; argillaceous carbonate of lime.
152	Kashuree		Kangra	Chalcedony.
153	Kashuree, 2nd		Surat	Sulphur.
154	Kibreet cha chia			Sulphur.
155	Kibreet cha chi, 2nd			Sulphur, roll.
156	Kibreet mooslee			
157	Kibreet nirmula	Sax	Dukhun	A compound.
158	Kibreet aonla sar	Gundhuk	Dukhun	
159	Kibreet seeah	Kalee gundhuk		
160	Kitte		Bullumgur	Iron ore.
161	Kurketuk			Sapphire.
162	Kusees		Dehlee	Green vitriol.
163	Kusees, 2nd			Sulphate of iron.
164	Kusees, 3rd			Sulphate of iron.
165	Killus	Choona	Hills, India	Lime.
166	Kulwa puthur		Caubul	Amethyst; amethystine quartz.
167	Kuthuela		Surat	Corundum.
168	Koorund		Benares	White soapy clay.
169	Khurya muttee		Poorub	Compact quartz.
170	Gawa		Cashmere	White clay.
171	Gopee chun dun		Hurdwar	Milky quartz.
172	Gomueduk		Surat	Serpentine? greenstone.
173	Gao dunta			Lapis lazuli.
174	Lajwurd		Khimas	Topaz.
175	Lal suffed		Surat	

No.	—	Synonyms.	Places whence Obtained.	Scientific Names, &c.
176	Lal goolabee . . . . .	. . . . .	Surat	Corundum.
177	Losinghan . . . . .	. . . . .	Caubul	Iron ore.
178	Luchsunya . . . . .	. . . . .	Surat	Milky quartz.
179	Luela . . . . .	. . . . .	. . . . .	Coarse garnets.
180	Luelee . . . . .	. . . . .	. . . . .	Felspar.
181	Mar mohuret . . . . .	. . . . .	Surat.	
182	Manuk munowur . . . . .	. . . . .	Surat	Felspar, red?
183	Manuk suffed . . . . .	. . . . .	Surat	Opal.
184	Manuk soorkh . . . . .	. . . . .	Surat.	
185	Moordar Sung . . . . .	. . . . .	India	Litharge; semi-vitreous oxide of lead.
186	Murksheesha	Sonamukhee	Surat	Schist, with iron pyrites.
187	Murkuz . . . . .	. . . . .	Furrukhabad.	
188	Mushukoonia	Nimuk munyaree	India.	
189	Milleh uswud	Kala nimuk . . . . .	. . . . .	Black salt.
190	Nushae	Nishasta	India	Starch of wheat.
191	Nosadur . . . . .	. . . . .	India	Sal ammoniac.
192	Nosadur puakancee . . . . .	. . . . .	Surat	Sal ammoniac.
193	Hadya . . . . .	. . . . .	Cashmere	Compact quartz.
194	Hirumjee . . . . .	. . . . .	Mooltan.	
195	Yakoot Budukshanee . . . . .	. . . . .	Surat	Ruby.
196	Yakoot Rumanee . . . . .	. . . . .	Surat	Ruby.
197	Yakoot zurd . . . . .	. . . . .	Surat.	
198	Yakoot suffed . . . . .	. . . . .	Surat.	
199	Yakoot kirumzee . . . . .	. . . . .	Surat	Green felspar.
200	Yakoot nubood . . . . .	. . . . .	Surat	Sapphire.
201	Yakoot nubood, 2nd . . . . .	. . . . .	Surat	Sapphire.
202	Yakoot . . . . .	. . . . .	Keju.	

ANIMAL KINGDOM.

1	Uz far ool teeb	Nukh	Surat	Unguis odoratus; black Byzantine.
2	Padzuhr huewane	Zuhr mohreh	India, Surat	Bezoar.
3	Bussud suffed	Moonga ke zur	Surat	Coral.
4	Bussud suffed, 2nd	Bekh moor jar	Dukhun.	
5	Bussud suffed, 3rd . . . . .	. . . . .	Surat.	
6	Shakh Moorjan . . . . .	. . . . .	Surat.	
7	Shakh Moorjan, 2nd . . . . .	. . . . .	Surat.	
8	Busud ke kism . . . . .	. . . . .	Dukhun.	
9	Juban	Puneer	Caubul	Cheese.
10	Goond bedustur . . . . .	. . . . .	. . . . .	Castor.
11	Hijr ool hool	Sung. siri mahee	Dehlee.	
12	Dod ool hureer . . . . .	. . . . .	Poorub	Silk-worm cocoon.
13	Dhal shootier . . . . .	. . . . .	Caubul	Cheese of camel's milk.
14	Roob mahee	Mahee	Surat	Mirzapore.
15	Zoobd ool buhr	Sumundur jhug	Surat	Cuttle-fish bone.
16	Shuma	Mom	India	Wax.
17	Suduf	Seemp	Surat	Shell.
18	Hijr ool dek . . . . .	. . . . .	India.	
19	Ghurrea ool jullood	Sirep	India	Glue.
20	Kuchroba . . . . .	. . . . .	Poorub	Amber.
21	Gao lochun . . . . .	. . . . .	Surat.	
22	Geedur soondee	Jackal's navel	India	Nest of Mantis.
23	Loloo	Mothee	Surat	Pearl.
24	Loloo . . . . .	. . . . .	Surat.	
25	Loloo zurd . . . . .	. . . . .	Surat.	
26	Loloo seah . . . . .	. . . . .	Surat.	
27	Loloo seah, 2nd . . . . .	. . . . .	Surat.	
28	Loloo seah khan	Mothee pucks	Surat.	
29	Loloo seah goolaba . . . . .	. . . . .	Surat.	
30	Merjan	Moonga . . . . .	. . . . .	Coral.
31	Nafe moochk bila . . . . .	. . . . .	Nepal.	
32	Mac shootur . . . . .	. . . . .	Arabia.	
33	Kustoor . . . . .	. . . . .	Bengal.	

MACHINERY.

CLASS V.—Machines for direct use, including Carriages.

Model of a coin-sorting machine, from the Mint at Madras, according to Major Smith's plan.

Bamboo hackery; hackery wheels; axle and sockets for the same.

Native cart, hackery. This sort of cart is used throughout Lower Bengal, and particularly in commercial towns for the transport of goods. It is remarkable for its extraordinary strength, being equal to a load of several tons. The wheels are made of babool or Acacia Arabica, the axle of sunderee or Heritiera minor, the stocks for the

same of Asun wood, and the framework and yoke of bamboo. The axles are seldom oiled or greased, and its total cost varies from 1*l.* to 2*l.* 10*s.*

An eka, or native carriage, for one horse, made at Patna, and intended to show the kind of single draft vehicle used by persons of rank in Hindoostan. The harness for the same will be found under the head of Manufactures from Animal Substances. Both carriage and harness have been contributed by Syud Meer Lupt Ali Khan of Patna.

Model of a carriage for ladies, of a bullock carriage, and of two carts—from Lahore.

Models of Mahratta carriages—from Rajah of Nagpore.

Model of state palankeen, made for the Rajah of Travancore, by Messrs. Simpson of Madras.

Country cart for bullocks, and basket complete, manufactured at Chicacole.

Model of a royal cart—Moulmein.

Wooden rath of Muchhunder Nath (a god); another, of Kumaree (a goddess); another, of Juggunnatte (a god)—from Nepaul.

Iron balance and weights: dharnce, bisoulee, seer, tin-paw, and ek paw—from Nepaul.

Water clocks for day and night—from Nepaul.

CLASS VI.—*Manufacturing Machines and Tools.*

Various spinning-wheels; models of spinning-wheels—from Bengal and Lahore.

Spinning-wheel for making pine-apple thread—from Singapore.

Reels for spinning pine-apple thread—from Singapore.

Model of a machine for twisting together silk threads, used in weaving—from Nagpore.

Model of a hand machine, for spinning cotton—from Nagpore.

Weaver's loom, and implements for manufacturing Dacca muslins.

Model of a weaver's loom; weaver's loom—from Bengal and Nagpore.

Hand-loom, on which the bugis sarongs are made, with cloth in the process of weaving—from Celebes.

Model of frame of hand-loom, as guide in setting up.

Hand-loom, complete with frame. Shows a much higher state of art than the Celebes loom, although the principle is similar—from Palembang, Sumatra.

Model of a loom for making gold and silver lace—from Moorshedabad, Bengal.

Weaving loom from Mysore and from Nepal.

Carpet loom, with a drawing, from Hoonsoor, in Mysore.

Samples of cotton, with description of process of manufacture—from Dacca.

Charka, for cleaning cotton, and cotton-press, from Broach.

Cotton-cleaning machine and charka, for separating seed—from Madura and Tinnivelly.

Rotatory cotton-cleaning machine—from Guntoor.

Mahratta cotton foot roller, and cotton mill—from Mysore.

Mill for extracting seed from cotton-pods—from Gwalior.

Model of a cotton gin—from Moulmein. Cotton cleaner, and various churkas for cleaning cotton—from Agra.

Cotton Jins, No. 1 to 4, Churkas, such as are used in the division of Agra, in the north-western provinces of Bengal.

No. 1 is the common native churka of the north-western provinces. It is of extremely rough workmanship, being made by a village carpenter at a low price within the reach of the peasant, and answers its purpose tolerably well; a practised person may clean 16 lbs. of cotton a day; but 8 lbs. is a full average for men and women working eleven hours.

No. 2 is a native churka, though not exactly in common use, it is more expensive than the first and costs about 3s.; but the great drawback is that the wooden roller soon wears out and is not easily replaced, as great accuracy is required that the spirals in the screws fit perfectly into each other. In effectiveness it is rather better than the common roller.

No. 3 is an attempt to remedy the inconvenience resulting from the rapid wear and tear of the wooden roller, by replacing it with a brass one.

No. 4 is another attempted improvement of great moment, in the addition of a roller with a small longitudinal bar, with the object of gently pressing the karpas or unseeded cotton into the rollers, and thus feeding the churka of itself. To be effectual this must revolve very slowly.

Cottage saw gin, made under the direction of the Commercial Association of Manchester, by Mr. Jamieson, at

Ashton-under-Lyne, and of which 200 were sent to India by the Court of Directors of the East India Company.

Clay model of female figure cleaning cotton. Clay model of old woman winding cotton.—Both from Mr. Blechyndyn; made at Moorshedabad.

Printing blocks, as used near Calcutta.

Implements used in manufacture of iron, viz.: two anvils, two sledge hammers, and a pair of pincers.

Utensils manufactured from Hazareebagh iron, with aforesaid tools. An anvil, hammer, small hammer, plough-share, and smith's tongs, the production of Mirzapore.

A cane for receiving water; strainer, baler, pan, and beater, native implements used in cleaning gold dust.

Iron tools for making silver filigree work—Cutlack.

A drill, axe, chisel, saw, and file, as used by ivory carvers; also a pearl piercer—from Moorshedabad.

Grain and brick pounder; mortar and pestle for pounding grain; mill for pressing sugar cane; mill for grinding wheat—from Moorshedabad.

Model of grindstone and pestle and mortar—from Lahore.

Sugar cane mill and bruising machine—from Mysore.

A dalla, selinga, khoris, and niska, for cleaning rice—from Assam.

Curry-stone, for grinding articles of food, with grinder—from Ghazepore.

Oil-mill and house of the miller—from Gwalior. Mah Raja Rao Scindiah.

Model of an indigo factory and oil-mill—Jessore.

A potter's-wheel, and wheel for polishing jewels and sharpening knives—from Moorshedabad.

Hones set in sandal wood—from Bunsee in Boondie.

Grindstones of lac, with sand and corundum—from Coimbatore.

Carpenters' and masons' tools, carpenter's auger—from Lahore.

A still for distilling spirits—from Moorshedabad.

Axes, augurs, gouge, chisel, beetle-nut crackers, and cocoa-nut graters—from Singapore.

Nepaul tile, and wooden mould of the same.

Nepaul bricks and wooden mould, wooden pestle and mortar, bamboo—from Nepaul.

Wooden machine for preparing rice and spinning; wooden instrument, with which the seed is separated from cotton—from Nepaul.

Khose and jana bana, for spreading rice—from Nepaul.

Dundee, mhoosa, kokapoo, thoo, hatha, shirki, and kokathoo, ungoo kuthee, mool kuthee, and koenthee koo, forming a weaving-frame, with its materials—from Nepaul.

Wooden model of machine for grinding sugar-cane, from Nepaul; and another, used by Gorkhas.

Nepaul oilman's press, and one used by Gorkhas.

Wooden model of water-mill, for grinding corn, grain, &c., and stone of the mill, from Nepaul.

Wooden model of machine for preparing butter, from Nepaul.

Wooden rolling-pin, for making bread, and wooden spoons, used in warming milk, from Nepaul.

Bamboo milk-pot, for keeping milk, from Nepaul.

Instruments for working mines, from Nepaul.

Iron and wooden instruments, used by carpenters, from Nepaul.

Instruments used by goldsmiths, from Nepaul.

Tools, &c., used by leather-workers, from Nepaul.

Lechee, used by Phool plate-workers, from Nepaul.

Tools used by copper-pot makers, from Nepaul.

Tools used by blacksmiths, from Nepaul.

Tools used by bricklayers, from Nepaul.

Tools used by stone-cutters, from Nepaul.

Great difficulty has been experienced in identifying many of the articles sent from Nepaul, for the reasons stated by the Calcutta Committee—first, that the things were originally badly packed; and, secondly, that in coming down to Calcutta they were much injured by the rain, and lost their labels.

CLASS VII.—Civil Engineering, Architectural, and Building Contrivances.

Persian wheel for raising water, from Lahore.

Picottah model, for drawing water from a well, from Madras.

Model of iron bridge in Doottee; models of bridges on the Britawti River, Trisool Gunga River, Bishnoimuti River, Bagmuti River, and of common bridges in Nepal.

Models of a tank, of soan dhara, and of a house, from Nepal.

Models of Godavery anicut, from Madras.

Breakwater adapted to Madras surf.

CLASS VIII.—Naval Architecture, Military Engineering, Ordnance Arms and Accoutrements.

(A.) Models of Vessels employed by the Natives in navigating the Indian Ocean and Rivers.

Models of vessels called Buglo, Naodee, Gungo, Koteo, and Muchoo, from Cutch.

Models of Cutch boats.—These models of boats are presented for exhibition by H. H. the Rao of Cutch, in which country, viz., at Maudavee, they were constructed, and have been sent to the Exhibition to show the peculiarities of Cutch ship and boat building.

Models of native craft.—Models of native craft frequenting Bombay, and the Malabar coast. These were made in the dockyard at Bombay, under the superintendence of Commodore S. Lushington, Commander-in-chief of the Indian Navy, and Captain Hawkins, I.N. The Arab batella, No. 8, is a private contribution from Captain Hawkins, which, after it has been exhibited, he wishes to be placed at the disposal of the Hon. the Court of Directors, for their Museum. It is considered perfect in every respect as a whole, and as to the detail; and the making of it has been superintended by an Arab from the Persian Gulf. It is made out of the wood of the "Cornwallis," which, after burning to the water's edge, was sunk here in deep water. For further particulars of this, and descriptions of the other models, see the following accounts:—

1 The Snake-boat of Cochin is a canoe of great length; they are used by the opulent natives and Europeans, as boats for the conveyance and despatch of persons on the numerous rivers and backwaters, particularly on that between Cochin, Allipay, and Quilon, which is about 80 miles southward, and on that which runs to Palipact and Triehoor, the former place being about 20, and the latter about 60 miles to the northward. These boats are from 30 to 60 feet in length, without any regard to breadth or depth, as they are worked from the solid tree; the broadest do not exceed three feet. Those of the Raja and officers of state are very handsomely fitted up, and carved in the most fantastical manner; they are made very neat, and even splendid, with painting, gilding, &c. The largest boats are sculled by about 20 men, double banked, and when pressed, their velocity is surprising, as much as a mile in five minutes. These boats are peculiarly adapted to the rivers, for it frequently occurs, that in dry seasons, there are sand banks perfectly dry, nearly 100 yards in breadth, over which they must be drawn, by the strength of the few men who are in them; the smaller size having only six rowers and a cockswain.

Those natives who can afford the expense, have the cabin neatly fitted up with Venetian blinds on the sides, but generally the cuscus or grass mat is substituted.

2 The Catamarans of Madras are formed of three logs of timber, their length is from 20 to 25 feet, and breadth $2\frac{1}{2}$ to $3\frac{1}{2}$ feet, secured together with three spreaders and cross lashings; the centre log being much the largest, with a curved surface at the fore end, which tends and finishes upwards to a point. The side logs are similar in form, but smaller, having their sides straight, and fitted to the centre log.

These well-known floats are generally navigated by two

men, but sometimes by one only, with the greatest skill and dexterity, as they think nothing of passing through the surf at Madras, and at other parts of the coast, while boats of the country could not live on the waves. At sea they are propelled through the water to a ship on the coast, when boats of the best construction and form would swamp.

3 The yacht "Wave," or fishing-boat of Bombay.—This boat is the property of an officer of the Indian Navy;* her model was taken from a fishing-boat of Bombay. The keel is curved, and being at the fore end 2 feet below the level of the keel amidships, it serves as a gripe or lee-board, and tends to make the boat weatherly. She has comparatively a flat floor, a hollow entrance, and a sharp flat run; her length over all 46 feet. Entrance breadth, 12 feet, and depth amidships, 3 feet 8 inches. Her main-mast is 36 feet in length, main-yard, 65 feet, mizen-mast, 22 feet, and mizen-yard, 40 feet. Sails lateen, made of drill, sewn in narrow cloths.

She was built as a pleasure yacht, but more particularly for the regattas, for which Bombay is famous, and when ballasted, has won many prizes. No boat of European form and construction has, as yet, been found to compete with her in point of sailing, in moderate weather.

4 The Jaugar, or Ferry-boat of Cochin, is formed by placing a floor of boards across two boats or canoes, from 10 to 12 feet fore and aft, and about 16 feet long. When these boats are thus formed into a raft, cattle and burthen-some articles are conveyed in them across the rivers, as also troops, with all their followers, horses, bullocks, &c. The boats or canoes are cut out of a solid log of timber, and are from 8 to 20 feet in length, 18 inches to 2 feet in breadth, and from 12 to 18 inches in depth.

When employed singly, the canoes are managed with much dexterity by the natives, with a scull or paddle, on the backwater of Cochin; and at the mouths of the creeks they are employed in great numbers in fishing.

The larger sort of boats are used for the conveyance of rice and merchandize on the numerous small rivers which flow into the backwater, extending 150 miles parallel to the sea coast.

5 The Cotton-boat of Bombay.—This description of boat belongs entirely to the port of Bombay, and they are so called on account of their being invariably employed in conveying cotton from the shore to the ships bound for China and Great Britain, loading with that article. These are the only boats made use of in loading and unloading the numerous kind of outward and inward cargoes of ships visiting the port. They are from 25 to 35 feet in length, 10 to 13 feet in breadth, and $3\frac{1}{2}$ to 4 feet in depth. They are very rudely but strongly built, and the largest of them will carry 15 tons of dead weight. They are employed in bringing the produce of the Island of Salsette, such as grain, grass, vegetables, &c., to Bombay, also for the conveyance of troops with their baggage, to and from Panwell.

The inside of the boat is lined with bamboo matting to protect the cargo from bilge water. They are generally navigated by a crew of six men and a tidal, principally Mahomedans, who live in the boat.

On one side of the mast is a fire-place, and on the opposite a cask or tank, containing fresh water. The bottom is annually, or oftener, paid over with a mixture of chunam, or lime, and vegetable oil, which hardens, and is a good protection against worms. They have one mast which rakes forward, and a yard of the same length as the boat.

The cost of one of the best of them complete is about 700 rupees. They are mostly hired by the day, at a rate varying from two to five rupees, according to their size and season of the year.

6 The Dingee, or Bum-boat of Bombay, is a small boat, from 12 to 20 feet in length, 5 to 7 feet in breadth, and 18 inches to 2 feet in depth; with a raking mast, and a yard the same length as the boat; they are navigated by three

* Mr. J. A. Keys, Assistant Indian Naval Storekeeper.

Tinsel tape, ribbon, and thread, from Lahore.
Caps, embroidered with gold and pearls; with other fabrics, from Benares.
Half shawls and scarfs worked with gold, silver, and silk, from Delhi and from Rajpootana.
Long, square, and small shawls, green, blue, and black; worked shawls, red, with pearls, from Cashmere.
Shawls, black, white, and red; shawl scarf—from Rajah of Pattiala.
Infant's robe, embroidered grass cloth—from Mrs. Marshman, Serampore.
Muslin mantillas, jackets, and collars; pine-apple cloth and collars; muslin caps; pine-apple cloth caps; frock bodies and sleeves—embroidered; worked by natives of Calcutta.
Waistcoat dhootie, cotton and munga mixed; chupcun or overall coat; scarfs, gold bordered, and embroidered in gold—from Assam.
A pulla, doputta, &c., for dresses, from Agra.
Shawls of various colours and patterns—from Rajah of Dhulepore.
Straw-coloured, lilac, red, and crimson kincobs; red and white mundeels; striped, green, red, and saree red lailahs; maymoodie; and dhooties, with silk border—from Rajah of Dhulepore.
Mooltan and cotton and Cashmere scarfs, from Lahore and Cashmere.
Scarfs of different colours, from Maha Raja Goolab Sing of Cashmere.
Scarfs, &c., from Huzara. Major Abbott.
Figured cloth, from Khlyrpoor.
Waistcoat piece; cap pieces; tinsel ribbons; bed strings; strings for the hair, from Lahore.
Mixed silk and cotton, imitation Sultaree silk.
Mooltan tambour work; Mooltan busmedars.
Boorhanpore fabric brocade, and pattern of same, from Indore.
Fabrics from Boorhanpore. "No. 1 was made to the order of her Highness the Baizee Ball, for one of the presents to Maharajah Sindiah on his marriage. The price charged her Highness was 1,000 rupees (Chundaree); but the real value is 550 rupees (Cor).
"Nos. 2 and 3 are also manufactured at Boorhanpore. The thread (cotton and silk and gold), of which they are made, is prepared at Boorhanpore. No mention is made of the places from which the materials originally come."—*Bombay Report*.
Brocades, silk and gold, from Ahmedabad.
Fabric of silk and gold from Ahmedabad. The silk from which these brocades are manufactured comes from China, Bassorah, and Calcutta. The gold and silver thread is manufactured at Ahmedabad. The cochineal for the red dye from England. The quantity of these brocades, manufactured for home consumption, is about 40,000 rupees' worth per annum. The average value of that exported, about 300,000 rupees' worth per annum. They are exported—to India, Bombay, Baroda, Poona, Gwalior, Hyderabad, and Rajpootana. Out of India—to Sindh, Cabool, Arabia, Persia, and China.
Square shawl from Seth Khumr Chund, of Ahmedabad.
Loongee, with gold thread border, and gold thread, green, red, white, and yellow; the same, red, black, and yellow, from Seinde.
Pattern green and orange silk, with gold thread; piece of green silk, with gold thread—from Ahmednuggur.
Silk scarf from China produce, and raw pine-apple silk, clickoned, and worked by Mussulmen; worked muslin dresses; beetle-wing dresses; lace scarf—from Madras.
Fine cottar muslin, with gold lace border; cottar muslin, unwashed, with gold lace border—from Travancore.
Kincob silk, from Trichinopoly.
Cloths woven, plain red, with silk; cloths woven, purple and black; cloths woven, red, with lace—from Guntoor.
Scarfs, embroidered with gold thread, from Tringancee and Pabang, Malay Peninsula.
Silk handkerchiefs and shawls, from Tringancee, Lingy, and Timor.

Scarfs, cotton, and dyes of native growth; raw silk from the continent of Asia—from Sumatra.
Salendongs silk, from Acheen, Sumatra.
Embroidered cloth, from China, and embroidered tape, from Celebes, forwarded from Singapore.
Turbans and lailahs—from Tonk.
Pieces of silk and cotton manufacture.
Piece of chequered cloth, silk and cotton.

CLASS XVI.—Leather, including Saddlery and Harness; Skins; Furs; Feathers; and Hair.

Embroidered elephant trappings in velvet, and frontal piece; embroidered awning in velvet, with embroidered cloth carpet; saddle-cloth in green velvet, and embroidered in gold, with head-stall to match, and rein—from Moorshedabad.
Mahratia saddle embroidered with gold and silver thread, and accoutrements complete, as used by the Mahratia nobility—from Maha Rajah Rao Scindiah.
Horses' bits; reins for a bridle; saddle-cloth stall and crupper.
Saddle-cloth, green and gold, with head-stall and crupper, all studded with gilt nails—from the Rajah of Kotah.
A complete set of single harness, belonging to the "Ekka," or native conveyance, No. 1365, manufactured in the division of Patna. Presented by Syud Luft Ali Khan.
Saddle-cloth (floss silk and woollen)—from Kotah.
Mahratia leather and water-bag.
Embroidered saddle from Khattiarwar. This is one of the saddles used by the Khattys of Khattiarwar, the descendants of a tribe of freebooters, whose horses were famous for their endurance, and the extraordinary length of marches that could be performed with them.
One set of harness, for gig or stanhope; also two pair of boots, as specimens of the workmanship of Calcutta workmen. "The harness is entirely of country materials, with the exception of the japan leather, which is English. The leather is of the up-country bullock hides, tanned in our own tan-yard, in the neighbourhood of Calcutta, with the 'bauble' bark, called, we believe, the 'prickly mimosa;' the plated furniture and arms of Great Britain are made up on our own premises by native artists. One pair of boots are made with French japan leather and morocco legs, and the soles, &c., of country leather; the other pair of enamelled leather of our own manufacture, and entirely of country materials and native workmanship."—*Extract of a letter from Messrs. James Monteith & Co., dated Calcutta, 7th March, 1851*.
Bengalee-tanned horsewhips.
Buffalo leather, manufactured for the purpose of army accoutrements; Bengal cow-hide, and a calf-skin, both tanned with the bark of the Babool tree, dressed and patent enamelled, for the purposes of carriages, and boot and shoe makers; specimens of Bengal cow-hide, similarly tanned with the same substance, the former dressed black, the two latter brown; half a buffalo-hide, tanned with Babool bark, suited for boot and shoe makers, and machinery; half a Bengal buffalo-hide, similarly tanned, and suited for harness and other purposes; half a buffalo-hide, used for belts, and other purposes of machinery; half a buffalo-hide, dressed and blackened for the preparation of horse harness; Bengal cow-hide, used in the preparation of saddlery; Bengal calf-skin, dressed brown, for shoe and harness-making purposes; Bengal sheep-skins, for shoe and harness-makers' purposes—from Messrs. TEL & Co., of Calcutta.
Tanned bison skin—from Mysore.
Buffalo-hide, tanned and dressed black; bullock-hide, tanned and dressed black, for shoe uppers; tanned and dressed brown and black, for caps, bags, &c.; bullock-hide, tanned and dressed, buffed; Neighery buffalo-hide, buffed—from Hoonsoor, in Mysore.
Dyed hides of fine colour—from the Rao of Cutch.
Saddle, &c., complete—from Lahore.

Coseimbazar silk corahs, and skeins of raw silk.—Messrs. Vardon, of Soojapore.

Pieces of silk handkerchiefs, from Moorshedabad.

Two bundles, containing two seers of coloured silk.

Striped silk, of sorts; plain silk, of sorts; silk scarfs; and silk cloth; from Lahore and Rajah of Pattiala.

Silk scarfs, striped silk of various sorts and colours, &c., from Lahore.

Six varieties of Tussar silk cloth, produced in the district of Bhaugulpore, in the division of Patna.

Twilled silk, cloth Tussar, manufactured in the district of Beerbhoom, in the division of Moorshedabad.

Raw and coloured silks; raw silk and thread from the castor-oil worm; Mungah and Arianh silks; scarfs; waist-cloths; and bed-curtains; from Assam.

Pieces of different coloured silk, complete assortment of raw silk, and piece goods.—D. Jardine, Esq., Calcutta.

Lady's flowered and Tartan silk dress piece; two pair of silk scarfs, with flowered border; from Bancoorah district, Moorshedabad.

Red and yellow satin.—Manufactured in Cutch. The raw material from China. The silk is dyed in Cutch.

Silks (Cutch). Manufactured chiefly for home consumption. The raw material from China and Calcutta. The silk piece called "Elacho" is manufactured principally for exportation to Zanzibar.

Silk gown pieces, from Tanna. These are imitations of English silks. The raw material comes from China, and is dyed at Tanna.

Silk (Sindh). Chiefly manufactured for home consumption, from raw material brought from China.

Loongees (Sindh). Two were brought from Kurrachee, and two were expressly ordered for the Exhibition, and were manufactured at Tatta.

Piece of silk, from Poona. This is a very curiously woven silk, being of two colours, one side red, the other green; it is called "pytanee." The raw material is brought from China or Calcutta, and dyed in Poona.

No. 2 are nine patterns of silk of an inferior manufacture to that mentioned.

Silks (Surat). These are manufactured in China, and dyed at Surat. No mention is made of the quantity manufactured for home consumption, or for exportation. They are the common patterns worn by the Parsee women in Bombay.

Purple silk, scarlet on one side, and small patterns of silks for choolies, from Ahmednuggur. These are made at Yeola, a place famed for the manufacture of silks. The value of the silks made annually at that place is stated to be from two to two and a half lacs of rupees.

"Of this, a quarter of a lac in value is consumed in the Ahmednuggur Zilla; half a lac is sold at the fair of Moheem, in Kandish, for transmission to Indore, Oojien, Cutch, Bombay, Surat, and other places in India; quarter of a lac goes to Berar; 10,000 rupees worth to Sholapoor; quarter of a lac is made up into borders, &c., of cotton piece goods locally consumed in the neighbouring districts; and the balance is said to consist of silks dyed, but unfinished, which are exported from Yeola to other places for completion."

"The raw silk comes from China. The dyestuffs, except a portion of indigo (produce of Kandeish), and a few unimportant ingredients, are likewise imported through Bombay."

Pieces of ribbon, from Ahmedabad. The materials from which these are made, and the red dye, are imported from the places just mentioned. The value per annum of those manufactured for Ahmedabad amounts to 20,000 rupees; of those manufactured for exportation, 100,000 rupees. They are sent to Baroda, Bombay, Rajpootana, Gwalior, and all parts of Guzerat.

Raw silk (three specimens), from Azimghur.

Silk manufactured at Bangalore.

Different colours of silk threads, from Cuddapah.

Various pieces of coloured silks, of different designs and patterns, from Nepaul.

Pieces of red silk, from Bhotan.

Pieces of yellow, orange, and black silk, from Nepaul.

Salendong silk, from Acheen, Sumatra.

Sarongs or petticoat silks, from Palembang and Acheen, Sumatra.

Silk cloth, from Camboja.

Trousers' silk, from Acheen, Sumatra.

Silk tape, from Celebes.

CLASS XIV.—*Manufactures from Substitutes for Flax, Hemp, &c.*

Two coils of Jute rope; bolt of Chandernagore hemp canvas; bolt of hemp and cotton canvas—Bengal.

Rigging of Bombay hemp; warm and cold register coir rigging (first manufactured in India); Jubbulpore hemp; Dhanchee hemp rope; and pine-apple flax rope—presented by the manufacturers, Messrs. W. H. Harton & Co., of Calcutta—from Calcutta.

Gunny or sackcloth, from *pat*, or *Corchorus olitorius*. Gunny and other cloths from plantain fibre, from Madras.

Canvas from Wackanoor or Wackoo nar fibre, from Travancore.

Two bundles of cotton, canvas, and rope, from Bengal. Specimens of cordage from fibres of various plants.—(See Fibres, Class IV. (F.))

Ropes prepared from the *Dhanchee*, or *Æschynomone cannabina*.—Messrs. Thompson and Co., of Calcutta.

Cordage from *Butea frondosa*, Beerbhoom.

Cordage from *Bauhinia racemosa*, Bhaugulpore.

Cordage prepared from vegetable substances by the natives of the province of Arracan.

Bark cloth, manufactured by the Semangs or Oriental negro tribes, from Kedah, Malay Peninsula.

Bark cloth, made from the bark of the paper mulberry, from Kailli, west coast of Celebes.

Bark cloth, made from Papyrus bark, from Java.

Cloth manufactured by Arafuras from native fibres.

CLASS XV.—*Mixed Fabrics, including Shawls and Scarfs.*

Silver enwrapped, plain gilt, and silvered turbans—from Calcutta.

Fine cloths for dresses, shawls, and turbans; gold embroidered cloths worn by Rajpoots, and used for turbans—sent by Maha Rajah Rao Scindiah.

Several pairs of sheets, embroidered with gold and silver, and gold and silk, and a turban with gold ends—from Bengal.

Piece of gold cloth; silver tinsel stamped; gold edging; and silver edging, rose coloured—from Benares.

Head covering worked with gold and silver tinsel; the same, with gold dyed purple tinsel; the same, with sky-blue bobbinet spangled tinsel—from Benares.

Gold embroidered manufactures—from Benares.

Silk dress-piece, worked with gold and silver; scarlet silk dress-piece, worked up with silk in needle in imitation of China work—from Calcutta.

Embroidered flowered silk and silk embroidered saree, from Agra.

Embroidered shawls and embroidered scarfs, from Dacca.

Embroidered and net scarfs; net square and three-cornered; neck scarfs; muslin, embroidered in gold and in silver; net scarf, embroidered in gold for head-dresses; net scarf, embroidered in silver—from Dacca.

Gold embroidered muslin and net scarfs; net scarf, embroidered in silver; Jamdane scarfs—from Dacca.

Rich kincob or brocade, &c., from Benares, exhibited by Baboo Deo Naryan and Gopinauth Debeersaad, &c.

Cashmere shawl, worked in green, crimson, blue, and scarlet, and embroidered in gold and silver.—A. Emerson, Esq.

Long shawls, red and green, and worked with needle; square cashmere shawls, from Loodianah.

Long and other shawls, from Cashmere.

Long shawls, white; square shawls, black, blue, and figured, from Maha Rajah Goolab Sing, of Cashmere.

Tinsel tape, ribbon, and thread, from Lahore.

Caps, embroidered with gold and pearls; with other fabrics, from Benares.

Half shawls and scarfs worked with gold, silver, and silk, from Delhi and from Rajpootana.

Long, square, and small shawls, green, blue, and black; worked shawls, red, with pearls, from Cashmere.

Shawls, black, white, and red; shawl scarf—from Rajah of Pattiala.

Infant's robe, embroidered grass cloth—from Mrs. Marshman, Serampore.

Muslin mantillas, jackets, and collars; pine-apple cloth and collars; muslin caps; pine-apple cloth caps; frock bodies and sleeves—embroidered; worked by natives of Calcutta.

Waistcoat dhootie, cotton and munga mixed; chupcun or overall coat; scarfs, gold bordered, and embroidered in gold—from Assam.

A pulla, doputta, &c., for dresses, from Agra.

Shawls of various colours and patterns—from Rajah of Dholapore.

Straw-coloured, lilac, red, and crimson kincobs; red and white mundecis; striped, green, red, and saree red lailahs; maymoodle; and dhooties, with silk border—from Rajah of Dholapore.

Mooltan and cotton and Cashmere scarfs, from Lahore and Cashmere.

Scarfs of different colours, from Maha Raja Goolab Sing of Cashmere.

Scarfs, &c., from Huzara. Major Abbott.

Figured cloth, from Khyrpoor.

Waistcoat piece; cap pieces; tinsel ribbons; bed strings; strings for the hair, from Lahore.

Mixed silk and cotton, imitation Sultaree silk.

Mooltan tambour work; Mooltan busmedars.

Borhanpoor fabric brocade, and pattern of same, from Indore.

Fabrics from Boorhanpoor. "No. 1 was made to the order of her Highness the Baizee Ball, for one of the presents to Maharajah Sindiah on his marriage. The price charged her Highness was 1,000 rupees (Chundaree); but the real value is 550 rupees (Cor).

"Nos. 2 and 3 are also manufactured at Boorhanpoor. The thread (cotton and silk and gold), of which they are made, is prepared at Boorhanpoor. No mention is made of the places from which the materials originally come."—*Bombay Report*.

Brocades, silk and gold, from Ahmedabad.

Fabric of silk and gold from Ahmedabad. The silk from which these brocades are manufactured comes from China, Bassorah, and Calcutta. The gold and silver thread is manufactured at Ahmedabad. The cochineal for the red dye from England. The quantity of these brocades, manufactured for home consumption, is about 40,000 rupees' worth per annum. The average value of that exported, about 300,000 rupees' worth per annum. They are exported—to India, Bombay, Baroda, Poona, Gwalior, Hyderabad, and Rajpootana. Out of India—to Sindh, Cabool, Arabia, Persia, and China.

Square shawl from Seth Khumr Chund, of Ahmedabad.

Loongee, with gold thread border, and gold thread, green, red, white, and yellow; the same, red, black, and yellow, from Scinde.

Pattern green and orange silk, with gold thread; piece of green silk, with gold thread—from Ahmednuggur.

Silk scarf from China produce, and raw pine-apple silk, chickoned, and worked by Mussulmen; worked muslin dresses; beetle-wing dresses; lace scarf—from Madras.

Fine cottar muslin, with gold lace border; cottar muslin, unwashed, with gold lace border—from Travancore.

Kincob silk, from Trichinopoly.

Cloths woven, plain red, with silk; cloths woven, purple and black; cloths woven, red, with lace—from Guntoor.

Scarfs, embroidered with gold thread, from Tringane and Pabang, Malay Peninsula.

Silk handkerchiefs and shawls, from Tringane, Lingy, and Timor.

Scarfs, cotton, and dyes of native growth; raw silk from the continent of Asia—from Sumatra.

Salendongs silk, from Acheen, Sumatra.

Embroidered cloth, from China, and embroidered tape, from Celebes, forwarded from Singapore.

Turbans and lailahs—from Tonk.

Pieces of silk and cotton manufacture.

Piece of chequered cloth, silk and cotton.

CLASS XVI.—*Leather, including Saddlery and Harness; Skins; Furs; Feathers; and Hair.*

Embroidered elephant trappings in velvet, and frontal piece; embroidered awning in velvet, with embroidered cloth carpet; saddle-cloth in green velvet, and embroidered in gold, with head-stall to match, and rein—from Moorsheadabad.

Mahratta saddle embroidered with gold and silver thread, and accoutrements complete, as used by the Mahratta nobility—from Maha Rajah Rao Scindiah.

Horses' bits; reins for a bridle; saddle-cloth stall and crupper.

Saddle-cloth, green and gold, with head-stall and crupper, all studded with gilt nails—from the Rajah of Kotah.

A complete set of single harness, belonging to the "Ekka," or native conveyance, No. 1365, manufactured in the division of Patna. Presented by Syud Luft Ali Khan.

Saddle-cloth (floss silk and woollen)—from Kotah.

Mahratta leather and water-bag.

Embroidered saddle from Khattiawar. This is one of the saddles used by the Khatys of Khattiawar, the descendants of a tribe of freebooters, whose horses were famous for their endurance, and the extraordinary length of marches that could be performed with them.

One set of harness, for gig or stanhope; also two pair of boots, as specimens of the workmanship of Calcutta workmen. "The harness is entirely of country materials, with the exception of the japan leather, which is English. The leather is of the up-country bullock hide, tanned in our own tan-yard, in the neighbourhood of Calcutta, with the 'bauble' bark, called, we believe, the 'prickly mimosa;' the plated furniture and arms of Great Britain are made up on our own premises by native artists. One pair of boots are made with French japan leather and morocco legs, and the soles, &c., of country leather; the other pair of enamelled leather of our own manufacture, and entirely of country materials and native workmanship."—*Extract of a letter from Messrs. James Monteith & Co., dated Calcutta, 7th March, 1851.*

Bengalee-made horsewhips.

Buffalo leather, manufactured for the purpose of army accoutrements; Bengal cow-hide, and a calf-skin, both tanned with the bark of the Babool tree, dressed and patent enamelled, for the purposes of carriages, and boot and shoe makers; specimens of Bengal cow-hide, similarly tanned with the same substance, the former dressed black, the two latter brown; half a buffalo-hide, tanned with Babool bark, suited for boot and shoe makers, and machinery; half a Bengal buffalo-hide, similarly tanned, and suited for harness and other purposes; half a buffalo-hide, used for belts, and other purposes of machinery; half a buffalo-hide, dressed and blackened for the preparation of horse harness; Bengal cow-hide, used in the preparation of saddlery; Bengal calf-skin, dressed brown, for shoe and harness-making purposes; Bengal sheep-skins, for shoe and harness-makers' purposes—from Messrs. THIL & Co., of Calcutta.

Tanned bison skin—from Mysore.

Buffalo-hide, tanned and dressed black; bullock-hide, tanned and dressed black, for shoe uppers; tanned and dressed brown and black, for caps, bags, &c.; bullock-hide, tanned and dressed, buffed; Neighery buffalo-hide, buffed—from Hoonsoor, in Mysore.

Dyed hides of fine colour—from the Rao of Cutch.

Saddle, &c., complete—from Lahore.

Camel's saddle, and horse saddle, with trappings complete—from Marwar.

Raw feathers; boas; artificial flowers; tippets, manufactured by natives; grey, white, black, and swansdown boas; grey and white muffs; Commercolly muffs; fur muffs for the neck; victorines—from Commercolly, Bengal.

CLASS XVII.—Paper, Stationery, Bookbinding, Printing, &c.

Paper made from *Daphne cannabina*—from Kemaon. It is remarkable for its strength, and affords better protection against dampness than wax cloth.

Kamptee paper—from Assam.

Sheets of paper, Nepalee Kaguj—from Nepaul.

Sheets, both coarse and fine, and of very large size, made from the inner bark of *Daphne cannabina*, exhibited by Lieut.-Col. Sykes and by Lieut. Strachey.

Rolls of coloured paper—from Lahore.

Paper, from plantain fibre, and from large aloe or agave—from Dr. Hunter, of Madras.

Nine sorts of paper—from Ahmedabad.

"Country paper," as it is termed, is manufactured to a great extent at Ahmedabad, and forms a considerable article of export from that city. The manufacturers admit that upwards of 20,000 rupees' worth of paper is annually exported to Bombay alone, and about 15,000 rupees' worth to Baroda. There are small manufactures of country paper at Kairie, Baroda, and Selaseer, but chiefly from refuse of paper and very little raw material, and therefore the article does not turn out good; whereas, at Ahmedabad, paper is manufactured from hemp tant from Merywur. Soap from the town of Besulnuggur, and soda (sajee khor). There are about 250 paper mills, or pounding machines, worked by the feet. This manufactory gives employment to upwards of two thousand labourers of all ages daily. There was a very fine kind of paper formerly manufactured expressly for posting letters and bills of exchange; but since the introduction of fine letter-paper from Europe, this sort of paper is not manufactured. A few quires can now be obtained as specimens of the manufacture of former days."

Specimens of bookbinding by a native of Trichinopoly, exhibited by T. E. J. Boileau, Esq., Bombay Civil Service.

CLASS XVIII.—Fabrics of different kinds, shown as specimens of Printing or Dyeing.

Though the arts of dyeing and of calico-printing have been practised in India from the earliest times, and by some are supposed even to have originated there, no goods have been sent expressly as superior specimens of either the one or the other art. But among the cotton, silk, woollen, and mixed fabrics exhibited as Classes XI., XII., XIII., and XV., are many beautifully-dyed articles, and a great variety of prints which may be admired for the taste and elegance of their patterns. The early esteem in which these were held in Europe, is evidenced by the oriental names of many of these Indian goods being applied even in the present day to these English imitations. The art of dyeing is still in a rude state in India, as far as the methods adopted are concerned; yet if we look at the results which are attained, they are not to be despised even by the side of the scientific dyeing of the west. But in the management of colours, the skill with which a number are employed, and the taste with which they are harmonised, whether in their cottons or their carpets, their silks or their shawls, Europe has nothing to teach, but a great deal to learn.

CLASS XIX.—Tapestry, including Carpets and Floorcloths, Lace and Embroidery.

Gold embroidered velvet carpet, with a long and two

square pillows, forming a sort of throne for native princes, from Moorshedabad.

Musnud cover or shawl, very richly gold embroidered.

Cotton carpets (*Satrunjees*) of different sizes—from Bengal.

Mirzapore woollen carpets; woollen and cotton rugs—from Mirzapore and Goruckpore.

Two cotton carpets—from Shah Ahmed of Sasseram.

Rug and hookah carpets—from Moorshedabad.

Cotton carpets and rugs—from Rungpore, district of Moorshedabad, and from Agra.

White, coloured, and striped blankets—from Assam.

Embroidered hookah carpets—from Bengal.

Richly embroidered carpets in gold; gold embroidered velvet carpet; embroidered velvet carpet—from Benares.

Cashmere carpet, silk—from Lahore.

Silk-embroidered carpet—from Mooltan.

Silk carpet, Cashmere—from Lahore.

Carpet, silk Cashmere—from Cashmere.

Carpet, cotton—from Mooltan, Lahore.

Carpet for silver bed to stand on; a large carpet, Cashmere; carpet—from Maharajah Goolab Singh.

Mooltan printed floor-cloth—from Mooltan.

Woollen carpets, mounted with silk—from Khyrpoor. These form a part of H. H. Meer Ali Morad's contribution, and were unaccompanied by any descriptive list.

Embroidered silks from Khyrpoor. They are sent by H. H. Meer Ali Morad. It is presumed that they were embroidered at Khyrpoor, on manufactures of the same district.

Large and small broad-cloth table-covers, embroidered with silver and gold thread; broad-cloth table-cover embroidered with silver thread; velvet chair-covers, embroidered with gold, from Sindh.

Table-covers, specimens of embroidery from Sindh. The cloth is from England—the silk from China. The town of Tatta is most famous in Sindh for this work.

Printed cotton carpet—from Ahmedabad.

Cotton carpet—from Ahmedabad.

Rugs, woollen—from Ellore.

Flowered silk carpet—from Madras.

Small woollen and silk carpets—from Tanjore.

Silver lace—from Lahore.

Broad black lace; broad, gold, and silver blonde lace; broad and fine lace—from Travancore.

An infant's robe of the finest grass cloth, and embroidered by hand, by natives of Serampore near Calcutta. Contributed by Mrs. Marshman, of Serampore.

Jackets, collars, caps, frocks, boddices, and embroidered mantillas, worked by natives in the city of Calcutta.

Chikun worked flowered muslin chudders, 2 pieces, worked by natives in the city of Calcutta.

A scarlet silk dress-piece, worked in imitation of China embroidery. Worked by natives in the city of Calcutta.

Silk scarf from China produce and pine-apple fibre, chikuned (embroidered) by Musselmans of Madras. Contributed by Mrs. Goodsir.

Handkerchief of pine-apple fibre. Contributed by Mrs. Goodsir.

(H) Quilted or padded.

A quilt, Razaee, and two pillows, Takeeah. Manufactured in the dominions of the Maharajah of Jodhpoor, in the states of Rajpootanah.

A quilt entirely worked by hand. Contributed by the Rajah of Kota.

CLASS XX.—Articles of Clothing, &c.

From Bengal.—A Kamptee dottee or male dress. Pat dhootees, male dresses. Poosoong, Pat silk, a female dress. Ranga, Pat sooria, native substitute for trousers. Pat rehas, scarf for females. Bogue pator surah or dhoty, native trousers. Pat meekla, female dress. Pat dhootees, male dresses. Areah for wearing apparel. Areah bhar kossar. Areah bor kossar, male and female dress. Reha female dress. Reha mikla female dress. Areah, coloured.

Mikla, coloured silk. Cloth, red and white. Gungera, red and white, for women's dress. Mikla, coloured. Munga areah, cotton cloth. Munga dhotee, for men. Munga mikla, for females. Munga rea. Munga rea, scarf. Mikla or Petticoat. Dhotee. Phakeel tartan.—From Gowhattee, in Assam.

Silk meghankhore for male dress. Petticoat. Handkerchief.

A wrapper worn by both sexes. A dress worn by nobility. A wrapper challah for nobility. Singpo bag, posasa, and tactins.

Embroidered caps. Purse worked with tinsel.

Fan, worked in a variety of embroidery, with silver-gilt handle. Red silk strings for trousers, with gold and silver tassels. Sky-blue bobbinet scarf, worked with silver and silk. Crimson bobbinet scarf. Pair of crimson bobbinet scarves, worked with silk. Sky-blue bobbinet scarf, worked with silver. Orange bobbinet scarf, worked with gold. Black bobbinet scarf, worked with gold. Black bobbinet scarf, worked with gold and silver. Square scarf, white bobbinet silk. Orange scarf, gold and silver. Square scarf, orange, gold and silver. Square scarf, crimson, loose crape, spangled. Green scarf. Head-covering, set with bits of glass. Head-covering, worked with silk. Cloth bodice dyed blue. Pair of cloth rings, ornamented with cowries, for securing the water-pot on the head.—Delhi.

Soosnee or quilt, worked by hand, and made of Ihatia patum.

Suit of a native gentleman's apparel, viz.: a gold figured muslin turban, according to the Bhoondee shape, a waistband to match; a pair of kinkob drawers, and a muslin vest—the usual dress of the Rajah of Boondie. Suit of ladies' apparel, viz.: a handsome petticoat, gold embroidered veil and head-dress, and a bodice worked with lace and tinsel. These articles form the usual dress of the Rajah and Ranees of Boondie in the Rajpootana States, and have been contributed by the Rajah.

Doputtas or garments worn by ladies of Jeypore, richly worked in silver, and printed in gold. Turbans, called Chundree and Lichruja, worked in gold. Sungahar handkerchiefs for tying round the head; chintzes for dresses; waistband cloths; and mantles or sheets worn over the shoulders.—States of Jeypore.

Ghoochus or blankets, a protection against rain. Chuckmahs or blankets. Blanket usually spread on the floor. Blanket with silk edging.

Native gentleman's apparel, viz.: two turbans, called Choongree, made at Kota; full-dress turban; waistband, selah, white muslin gold flowers; piece muslin, gold stamped; piece brocade kincob for drawers; and two pieces striped muslin, Doreeah, for jackets. Ladies' apparel, viz.—petticoat, green silk stamped with gold; head-dress and veil, gold bordered; red veil, figured; choolie or stays. Worn by the people of rank in Kotah.

Puggrees, or turbans, of Jesselmere wool.

Silver-worked scarfs. Silk scarfs, gold-edged, white, orange, and puce colour. Silk scarfs, yellow and plum colour. Cotton scarfs, from Lahore.

Women's and men's shoes. Cap and tassel. Head-dress worn by Akalis, Lahore.

Trousers, dresses, scarfs, and shoes, from Maharajah Goolab Sing.

Dress bodice, trousers, undergarment, sheet, pair of shoes, gown, bundle hair-strings.—Ranee Sookhan.

Cloak, sheets, turban, pieces shawl stuff, and scarf, jacket, pantaloons-strings, sets bed-strings, woollen cap, waist-ropes, Chumba dress, pair sheets, and turbans.—Raja of Pattiala.

Piece Major Abbot's Huzara Soojie cloth, Loongie. Caps embroidered with gold and pearls.—Benares.

Kareem man's dress. Poongas priest's dress, upper and lower garments. Burmese gentleman's dress. Kareem woman's dress, lower garment, and scarf. Burmese ladies' dresses of the second class. Upper garment of coloured cotton. Kareem male and female dresses. Sandals.—From Moulmein.

Crown, or tuj, as worn by the King of Oude; without jewels.

Mundil, or turban, as worn by the minister, prince, and members of the royal family; from the King of Oude.

Doputtas and other articles of dress. Puggrees, or turbans. Selahs, or double doputtas. Dhooties. Kochos, or kummur bands. Saries. Piece of common silk. Gold and silver embroidered slippers. Common slippers. Marhatta child's turban.—From H. H. the Maharajah of Nagpore.

Wearing apparel. Musquito curtains. Native ladies' dresses, of white and black watered silk. Set of bed-curtains, as used by the higher classes. Embroidered waist-belt. Coloured muslin turbans.

Native dresses. Duneya: cross-striped, &c. Gudka chent petticoats.—From Agra.

Dehli worked puchchassees in pearls.

Bengalee wooden sandals. Native-made slippers and boots.

Mahratta children's turbans, from Nagpore.

Native lady's bodice, richly embroidered. Waist-belt, embroidered in velvet and gold.

Shoes for men and women.

Waistcloths, called Dhotee. Petticoats, called Mackelah. Scarves, called Reha. Ornaments for turbans—from Assam.

From Madras Presidency.

Lady's scarf, English shape, from Vizianagram.

Lady's pocket handkerchief, of Indian produce, pineapple fibre, from Madras.

Lady's scarf, English pattern, from Vizianagram.

Native female clothes. Boys' tinsel and silk caps—from Vizianagram.

Caps (moplah), of sorts, from Calicut.

Bodices of different patterns, for natives, from Madras.

From Bombay.

A dress of a Cutch lady of rank, manufactured in Cutch, from the Rao of Cutch.

A complete suit—"The dress of a native (Mahomedan) female of rank, which has been made up and prepared by her Highness the Secundee Begum of Bhopal."

Dress of a Hindoo woman, whose husband is alive. Manufactured at Ranees Bidnoor, in the Dharwar Collectorate.

Dress of a Hindoo widow, Belgaum.

Dhoter furusaptee used by men, Belgaum.

Cholees or khuns, &c. Used for making spencers for women whose husbands are alive; also the dress called purkara, resembling aprons, for girls under five years of age. The raw material is brought from China through Bombay, and is dyed in the Southern Maratha country. These silks are manufactured almost entirely for local consumption.

Silk goojees, shirts and mantle, Scindee hats and fans. These articles from Khyrpoor are contributed by H. H. Meer Ali Morad.

Choolies, or bodices, and body garments, from Ahmednuggur.

Embroidery of Cutch. These four aprons have been worked on English satin, with silk imported from China.

Embroidered silk vests (Surat).—The fabric is woven at Surat, from China silk dyed there, and then embroidered and made into vests for the Parsee children of the place.

Boots and shoes (Sindh). These show the kinds of boots and shoes worn in Sindh and the neighbouring countries. They are from H. H. Meer Ali Moorad.

CLASS XXI.—Cutlery and Edge Tools.

Silver-mounted carving-knife and fork, in silver-mounted velvet case—from Trichinopoly. A. Freese, Esq. M.C.S.

Knife—from Cashmere.

Carvers and a set of dinner and desert knives of Indian steel, with buckhorn handles and silver ferules, made by a native iron smith at Trichinopoly, exhibited by T. E. J. Boileau, Esq., M.C.S.

wood; ivory inkstand; buffalo-horn and ivory writing-boxes, lined inside with sandal-wood; buffalo-horn cribbage-board; ivory work-box lined with sandal-wood; porcupine-quill box lined with sandal-wood; ivory watch-stand, with work; cornelian knife-handles; ivory and sandal-wood cribbage-boards; ivory card-cases with book; paper knives; ivory combs; ivory dice. Calcutta.

Box made of cloves. Calcutta.

Ivory backgammon-board, fluted envelope-case, and knitting-box; sandal-wood and ivory box; porcupine-quill-box; white and black elk-horn inkstands; porcupine-quill, ivory, and buffalo-horn work-box; white elk-horn box; buffalo-horn box and tea-chest; sandal-wood and ivory basket—from Vizagapatam.

Porcupine-quill baskets; box made of bison-horn, containing chains made of lac, from Vizagapatam.

Inkstand of buffalo-horn set with porcupine quills, and sandal-wood drawers; watch-stand of buffalo-horn and sandal-wood; hookah snakes with pipe-sticks; hookah pipes.

Porcupine pen-holders, from Vizianagram.

Inkstand of carved ebony; combs of carved ivory—from Bijour, in Rohilkund.

Sandal-wood box, from Mangalore.

Backgammon-board chessmen, manufactured at Surat.

Carved box (Cutch). This is a specimen of Cutch carving. The wood is from Africa.

Bombay inlaid work. The ivory of which this is principally made is brought from Africa.

Portfolio, netting-box, basket, needle-case, envelope-case, pen-stand, paper-stand, large box, and inkstand.

Round box, turned. This is not lacquered, but polished; it is made of kao-wood.

Wooden boxes turned, and lacquered with various colours, chiefly at Hyderabad, in Sindh.

Wooden combs, from Sindh. These are made of kao wood, a species of olive from Beloochistan.

Sandal-wood box carved, sandal-wood box plain—made at Calcutta.

Inkstand, made of carved ebony, manufactured at Bijour in the Division of Rohilkund.

A lacquered box, made at Bareilly in Rohilkund.

Sandal-wood box, and box made of Sissou-wood—made at Nepal, and contributed by the Rajah of Nepal.

An assortment of Burmah boxes, from the Tenasserim Provinces.

Shan lacquered boxes—Mr. W. Norris.

Siri boxes, Sumatra Palembang—previous to undergoing the process of lacquering, lacquered plain, and flowered and completed.

Siri boxes, of Kayu Buka—previous to being lacquered, and lacquered and completed.

Writing box, Sumatra Palembang.

Pyramidal boxes, and small lacquered boxes, Sumatra Palembang.

Lacquered wood dippers, Sumatra Palembang.

Salver or tray, Singapore, formed in the jungle by Malay woodmen, who bring them into town for sale as soon as a sufficient number is collected. Cost 5d. each.

Salver or sweetmeat trays, Sumatra Palembang—as cut from the forest-tree previous to being smoothed and lacquered, partly lacquered, and completed.

Covers for dishes, Borneo (interior of Banjarmasin, S. C.) The ornamental work closely resembles that of the natives of Ceram, but the shell-work is not so fine.

Set of boxes, fitting one within the other, Borneo (Kota Ringin or Waringin, S. C.)

Lid of a box, made at Ceram, in the Malacca islands. This manufacture has recently excited a certain degree of interest, from the close resemblance it bears to the ornamental works of the North American Indians.

Set of Ceram boxes.

Cigar-case, from the Celebes, manufactured from Pandanus leaf by natives of the interior.

Kopia, or skull-cap, from the Celebes. Pandan leaf, worn by the Mussulman inhabitants.

Cheese-board, from Pinang, inlaid with specimens of ornamental woods.

Bugis Kapok, from Celebes.

Clove model, Amboyna. Model of an orang baai, or state barge, made of cloves by natives of Amboyna. Flower-basket, made of cloves by natives of Amboyna. Imitation tea service, made of cloves by natives of Amboyna, presented by Robert Bain, Esq.

(C.) Imitation Fruits and Flowers.

Artificial fruits and vegetables. These were manufactured at Gokak, in the Belgaum Collectorate, southern Mahratta country: they are only made to order, and do not form an article of export.

1. Custard apples (*Annona squamosa*). 2. Pompalmose (*Citrus decumana*). 3. Jack fruits (*Artocarpus*). 4. Pine apples (*Bromelia ananas*). 5. Pomegranates (*Punica granatum*). 6. Ramphuls or custard apples (large). 7. Citrons (*Citrus medica*). 8. Figs (*Ficus carica*). 9. Mangoes (*Mangifera indica*). 10. Plantains (*Musa sapientum*). 11. Oranges (*Citrus aurantium*). 12. Limes (*Citrus limetta*). 13. Guavas (*Psidium pyrifera*). 14. Jambool (*Eugenia jambolana*). 15. Wood apples (*Feronia elephantum*). 16. Water melons (*Cucumis citrulus*). 17. Sugar-cane sticks (*Saccharum officinarum*). 18. Bere berries (*Zizyphus jujuba*). 19. Tamarinds (*Tamarindus*). 20. Pumpkins (*Cucurbita*). 21. Snake-gourds (*Cucumis sp.*). 22. Tooraces (*Cucumis sp.*). 23. Seogapeds. 24. Kuraslas. 25. Bhendeas (*Hibiscus longifolius*). 26. Cucumbers (*Cucumis*). 27. Brinjals (*Solanum melongena*). 28. Onions with leaves (*Allium cepa*). 29. Sweet potatoes (*Batatas edulis*). 30. Chillies, foreign (*Capsicum*). 31. Chillies, country.

Imitation fruits and flowers.—Lotus flowers, water-lilies, white and pink; parakai; peechengai; ripe and green chillies; padralengai; cadju fruits; panchakai; bilimbee; brinjals, round and long; betel-nuts, ripe; pomegranate fruits; rose-apples; codumbooly fruits; country gooseberries; chollum bunches; bandicays; Jack-fruit in miniature; pine-apple; mangoes; green and ripe plantain; Guava fruit; Guava green—from Travancore.

Lotus flower, made of sandal-wood, from Calicut.

Imitation fruits.—Walnuts, and pieces of the kernel; almonds and kernels; dates, pistachios; betel-nuts in their prepared state—from Nawab of Rampore, in Rohilkund.

(D.) Toys, Beads, Puzzles.

Specimens of toys in ivory, contributed by the Rajah of Jodhpore.

Toys in common use in Bengal.

Merry-go-round, from Bengal.

Toys in wood (Surat); but when they reached the committee, were found to be of so inferior a kind that they were re-sold.

Malay puzzles. Two Malay puzzles in bottles.

Strings of Brahmins' beads, made of the seeds of *Eleocarpus ganitrus*, from Bengal.

Necklaces and bracelets. These are made at Poona, and stated to be composed of the dust of sandal-wood mixed with gum.

Beads (Gujerath). See Class 1.

Games.

Boxes of gungalah or packs of cards.

Chowpan board, contributed by the Rajah of Jodhpore.

Lac Ware.

Lac ware.—Goblet, varnished; large and small pots; a kind of mug. Wood ware.—Bottle pot; large and small cups; small water-pot; pot for vermilion; plates and toys—from Mirzapore.

Lacquered toys, and lac ornaments.

Specimens of sand with which lac grindstones are made; corundum stones, which, being pulverized, are used in making lac grindstones; lac grindstone complete—from Coimbatore.

Ornaments from dried fruits of cocoa-nut, meant to represent the garlands given to visitors of distinction on visits to the palace, worn by ladies at a particular festival—from Tanjore.

Doyleys made by the ladies of the feudal Mahratta family of Angria, reduced to dependence on their industry by political changes, and chiefly through the suppression of piracy on the western coast of India. —J. Chapman, Esq.

(i.) *Fans, Umbrellas, Parasols, Chowrees, and Walking-sticks.*

Fan with gold handle, khus khus-ka punkah, made of khus-khus grass (*Andropogon muricatum*), which, when wetted, emits a fine fragrance. —Contributed by H. H. the Rajah of Kota.

Sandal-wood fans.

Large and hand-fans of Palmyra leaf. —Bengal.

A fan from the Rajah of Pattiala.

A large and two small fans with plated handle, from Calcutta.

Fans from the states of the Rajah of Jodhpore.

A state fan, with silver handle, from Moorshedabad.

Fan of China beads and pearls. —Delhi.

State umbrella, with silver stick, from Moorshedabad. (See accompanying Plate.)

An ornamented and gold embroidered state parasol with silver stick — from Moorshedabad.

Assortment of Bengalee chattahs, used by natives during rainy season.

Noorooj mookee, a native parasol, with silver top and handle. Gold umbrella, with silver top and handle. —Contributed by the Rajah of Dholepore.

Assamese umbrellas, used by nobility; cane fans; cane mat, for noblemen to sit on; peacock-feather fans, used by natives of rank; luggage baskets, used for carrying cloths. —Assam.

An umbrella made of painted cloth. A small umbrella. —Manufactured at Calcutta.

Four bamboo walking-sticks, gold and silver mounted, contributed by the Rajah of Ulwar.

A painted stick with silver top, contributed by the Rajah of Kissenghur.

Walking-sticks of sorts, made at Calcutta and Cochin.

Betel-nut sticks.

Sandal-wood whisk, from Calicut.

Sandal-wood and ivory chowrees, or whisks, from the Rajah of Bhurtpore.

Two chowrees, of the tail of the Yak (*Bos grunniens*), with silver handles—from the Rajah of Ulwar.

Hookahs and Hookah Snakes.

Cocoa-nut and lac hookahs—from Bengal

Hookah snake with nicha; snake-cover for the hookah, with a rosette to fasten to the mouth-piece; hookah snakes, with pipe-sticks; hookah pipe, stick, &c.

Selim for smoking, sent from Singapore.

Singpoo pipe for smoking opium; box of pipes.

Boots and Shoes, &c.

Shoes worked with gold and silver.

Gold-worked shoes and slippers, for females; silver-worked slippers; gold-worked shoes, for men and children; Bengalee shoes with gold and silver; Bengalee country leather; Bengalee writing red leather; Bengalee yellow; buffalo-horn combs.

Skeindan boots and shoes, from H. H. Meer Ali Morad of Khyrpoor.

Looking-glass and case, from the Rancee Sookhan of Sheharunpore.

(II.) *Fishing Tackle of all kinds.*

Nets—Sekoolies—made at Calcutta.

Floating net, Singapore, employed in taking a small kind of herring in the neighbouring strait. The twine is of cotton, manufactured in Java.

Floating net. The twine of this net is made from the rami fibre, *Urtica nivena*. (See Class IV.)

Casting net. The thread made in Java from native cotton.

Seine net. Twine of rami fibre.

Fishing lines. Twine of rami fibre.

Fishing lines. Twine made of Java cotton thread, tanned with the fruit of the mangrove.

Description of Fishing in Bombay Harbour and its Vicinity.

Model of stake-net fishing, with fishing-nets used in Bombay.

1 If new stakes are to be sunk, a space of 2 fathoms must be reserved for the passage of boats on each side of the compartment. Fishing in stakes is always within 10 fathoms of water; stakes are made of healdy wood in three or four pieces. If a cocoa-nut tree, one answers the purpose. In some cases a piece is added to it, if the tree is a short one. A stake is sunk about 3 fathoms in mud; it is generally 15 fathoms long, 3 of which are buried in the mud, 10 in water, and about 2 over the surface. On the occasion of sinking a stake, two boats are put together and anchored fore and aft, with anchors of about 2 cwt. each, leaving a space of about a quarter fathom between the two, and two cross beams are tied over the boats, in order that they may remain firm and close together, and hold the stake between the reserved space, the lower end of which (the stake) is let down, tied up with large and heavy stones, or anchors of a large size. In order to sink it below they tie four ropes at the top of the stake, each of about 2 or 2½ inches; these ropes are fastened to the masts of the boats with blocks, and some of the people in the boats (who are generally between 30 and 40) pull the stake down by standing over the fore parts of the boats, and let it into the water in a straight line with the others, through the space allotted for that purpose, when it is sunk in the manner above represented. This operation is performed when there is full tide; and as the stake is held between the two boats, tied up with the ropes above alluded to, it is driven down by the force of the boats, which sink also as much as the water; so soon as the ropes become slack they are made fast over and over.

2 The bark of the tree (Babal bark), used in giving colour to the net, accompanies this bearing, and even number (No. 2). A new net, prior to being used, must be boiled in water in copper pots, with chunam or lime, for two days and two nights, and then it may be used for three days, when it should be washed and coloured. All the nets, it may be understood, are made of twine, with the exception of the Warree net, which is made of thread.

3 Each net, called dole net, is 22 fathoms long, 15 broad, and is made of the shape of a bag, but wide at the mouth (15 fathoms), and narrow at the end (about 2 fathoms), meshes 8 inches wide at the mouth, and reduced in proportion, so as to be half an inch wide at the end. On throwing it into the sea, the mouth on both sides is fastened to the stakes at the distance of 10 fathoms each, which is the space reserved between the stakes. Each side is fastened to a ring put on the stake, the upper edge is held up, and the lower no sooner is tied to the ring than it goes down as far as 8 fathoms, by the weight of a stone which is kept always tied up to the girth. A line across is also tied up between the two stakes, to which the upper edge of the net is tied just in the middle, in order that it may not remain loose and obstruct the entry of the fish. It may be stated that before throwing the net into the sea, its floating end is tied up and secured fast to prevent the escape of the fish. Each boat carries four or five nets, and sometimes three, but not more than five under any circumstances. On the occasion of fishing, when there is full tide, the mouth of the net is kept on the side of the harbour, in order that, on the tide receding, the fish going out may enter the net, and through the strength of the current run down to the end of the net, where all the fish join together; and *vice versa* is the case on the occasion of the ingress of the water. On pulling the net, they draw the lower end up, and after taking it on board they open the end and draw the fish

distance from a small village. A section of the wall or fort surrounding the village is exhibited, in the inside of which are rows of houses with shops, displaying for sale grain, and all kinds of petty merchandize. A river flows by the outside of the fort, and on the banks of it is portrayed that busy scene which is so peculiar to Indian life—men and women washing cloths, laying them out to dry, filling their pitchers with water, making their ablutions, &c. A bridge is thrown across the river, leading direct to the door of the fort. In another part are fields of standing corn, a crop of jowary, and of sugar-cane; adjoining them is a thrashing place, where the oxen are treading out the corn, and the cultivators in a contiguous spot winnowing and preparing it for market; another field is being ploughed and prepared for sowing. Next is a well with bullocks drawing water for irrigation with the leathern bucket or mot'h.

"The collector himself is seated inside the double-poled tent, and is supposed to be engaged in making the Jumma bundy, or settlement for the current year's revenue. He is surrounded by the manletdar and the other revenue officers of the district, with a number of Carpoons seated around. A large body of ryots is collected at the door of the tent, petitioning for "soot," or remission of part of their revenue payments. Groups of them are seated here and there round the adjoining trees, where they are having their petitions written out by the coolkurnees or village accountants. Besides the double-poled tent, there is a beehoba, or sleeping tent, and an office rowtee, and in the rear are a large lot of rowtees and palls for the use of the butler, cook, and other servants. The horses are picketed at a short distance off, and near them are the camels and bullock carts engaged for the transport of the tents and baggage. There are numerous other scenes descriptive of a camp life on this bustling, important occasion; but it would occupy too much space to describe them. There are altogether about 300 figures of all kinds. The tents are made of wood, with a white cloth covering pasted over them. The temples, houses, and section of the village are also cut out of wood and coloured; but all the animals and figures are of the Poonah plaster-work. The whole is exhibited on a large wooden platform nine feet square. A list of all the figures, with the numbers on them, denoting their position on the platform, has been enclosed in one of the boxes. This will serve as a sort of key for arranging the whole."

Thirty-five figures in wood from the Rajah of Jodhpore. Figures of the principal sects, male and female, at Cochín and Travancore, exhibited by T. E. J. Boileau, Esq. Model of European court of justice in the provinces, made by a native modeller, Jessore.

Model of a native court of justice in India.

Model of a silk factory, by Mr. Cockburn, of Moorsheadabad.

Model of an indigo factory.

Messrs. Watson's model of a native oil mill.

Model of a farm establishment. Java, *via* Singapore.

Model of a Burmese house of the higher class.

Model of a Burmese pagoda, gilt, with images and ornaments.

Model of a priest's house in Burma.

Images of Burmese man and woman.

Image of Godomah on his earthly throne, as king of kings.

Image of Godomah fasting for four years protected by an enormous serpent.

Image of Godomah's last appearance on earth.

Image of Amnondal, brother to Godomah.

Model of the Churuk Pooja, a religious penance practised in Bengal.

Stone sewala or Hindoo temple, from Mirzapore.

Stone model of Hindoo temple, presented by Baboo Futty Naryn Sing of Benares.

Model of unfinished rogyoporom or entrance to the pagoda at Streerungum; model of Nagasoorum pagoda at Combaconum, from Trichinopoly.

Model in pith of *Nutta* or *sholah* plant (*Eschynomene aspera*), by Lieut-Colonel Burney.

Two smaller figures: Mr. Gandy.

Painted wooden tray (Khyrpoor). This was sent down among the collection of articles forwarded for the Great Exhibition by H. H. Meer Ali Morad, and has therefore been transmitted. It bears a good representation of the manner in which the ceilings of the best houses in Sindh are ornamented.

Stone intaglios:—Gunesch, Burmah, Bishen Dabee, Muchk, Kuchk, Barah, Nursing, Bawon, Pursooram, Ram Chunder, Bulram, Boudh, Kulunke, Radha Krishen, Radha of the Sun, Radha of the Moon, Ooma Musheswar, Inder Koomaree, Urjoon, Suhden, Bhucmsen, Narayan, Hunooman, Indramee, Burhmanee, Roodranee, Maha Luchmee, Bhugwatee, Kalee, Koomar, Munjoosree, Duckhen Kalee, Bulbhuder, Bhyrub, Kal Moorti Bhyrub, Mahakal, Singhnee, Bayaghurnee, Guroor, Kuwondh, Khayah, Gourse—representing the mythology of the Nepaulese, exhibited by His Highness the Rajah of Nepal.

Enamelling.

Enamelling (Cutch). This is a small knife, or dagger, watered like a Khorasan blade, which it probably is, the sheath only having been made in Cutch.

Enamelling (Sindh). This is a large knife, probably of Khorasan manufacture, with sheaths enamelled in Sindh.

Enamelling (Khyrpoor). This is another knife similar to the foregoing, sent among the collection from H. H. Meer Ali Moorad.

Gold bangles, enamelled. These form part of the collection from H. H. Meer Ali Moorad, and were not opened.

Enamelling (Indore). This is called "dasoostare," and is manufactured at Jeypore. R. C. Hamilton, Esq.

Model of a gateway (Cutch) in silver, with toujon and bearers. This is a model of the gateway to the palace of H. H. the Rao of Cutch at Booj. It was made at Booj.

Model of a musjed. This is a specimen of one of the wooden models for which Ahmedabad is famous. It is the property of Mr. Mansfield, of the Bombay Civil Service.

Model of a chuburdee, or Hindoo cenotaph (Cutch). This is made of red wood from Africa. It is 1 foot 3½ inches long, 11½ inches broad, and 10 inches high.

Model in wood of a Hindoo temple (Cutch). This is made of sandal-wood. It is 1 foot 7 inches long, the same broad, and 1 foot 1½ inch high. Rao of Cutch.

Caligraphy.

Persian manuscripts, executed by the Caligrapher to the King of Oude.

The same, executed with the nails of the thumb and second finger of the right hand.

Two specimens of caligraphy in Persian, two ditto in Nagree, and one ditto in Persian (running hand), executed at Ulwar, in the States of Rajpootana.

A highly-ornamented manuscript, in Persian and Guzeratee, containing an address of thanks to Sir Jamsetjee Jeejeebhoy, of Bombay, on occasion of his visiting his native town of Nowsarce, near Surat, and stating in detail the works he had constructed there at his own expense for gratuitous public use. The address is signed by two thousand persons. Deposited (at the request of the committee of native gentlemen who managed the address), by Jevanjee Pestonjee and Rustomjee Vicaajee, Esqrs.

Drawings representing Occupations, Customs, &c.

Drawings on tale of the servants in North-west Provinces, and of the attendants and Indian articles employed in the Mahomedan ceremony of the Mohurruun, exhibited by Mrs. Royle.

Drawings on tale of agricultural operations, trades and castes, and servants, of southern part of the Peninsula of India, exhibited by T. Boileau, Esq.

Book, containing paintings, by Buldeo.

Water-colour drawing, by a native artist at Ulwar.

Set of water-colour drawings, representing the process of the opium cultivation and manufacture at Patna.

Another set, exhibiting the process of the shell bracelet manufacture in Dacca.

(*Silurus boalis*), the teeth of which being fine, recurved, and closely set, act as a fine comb in removing minute particles of earthy and vegetable matter from the cotton. The Hindoo spinner, with that inexhaustible patience that characterises her race, sits down to the laborious task of cleaning with this instrument the fibres of each nob of cotton. Having accomplished this, she then separates the wool from the seeds by means of a small iron roller, which is worked with the hands, backward and forward, on a small quantity of the cotton seeds placed upon a flat board. The cotton is next bowed with a small bow of bamboo, strung with a double row of catgut, muga silk, or the fibres of the plantain tree twisted together; and having been reduced by this instrument to a state of light downy fleece, it is made up into a small cylindrical roll (*pusa*), which is held in the hand during the process of spinning. The spinning apparatus is contained in a small basket or tray, and consists of a delicate iron spindle (*tukooa*), having a small ball of clay attached to it, in order to give it a sufficient weight in turning, and of a piece of hard shell, imbedded in a little clay, on which the point of the spindle revolves during the process of spinning. With this instrument the Hindoo women almost rival Arachne's fabled skill in spinning. The thread which they make with it is exquisitely fine, and doubtless it is to their delicate organization, and the sensibility with which they are endowed by nature, that their inimitable skill in their art is to be ascribed. The finest thread is spun early in the morning, before the rising sun dissipates the dew on the grass; for such is the tenuity of its fibre, that it would break if an attempt were made to manufacture it during a drier and warmer portion of the day. When there is no dew on the ground in the morning to indicate the presence of moisture in the atmosphere, the spinners impart the requisite degree of humidity to the cotton by making the thread over a shallow vessel of water. The various implements used in the preparatory processes of weaving are the reeds for winding the thread, the hand-wheels for warping, the sley-hook and reed, and the apparatus for forming the heddles. During the process of preparing the thread, and before it is warped, it is steeped for a couple of days in fine charcoal powder soot, or lamp-black mixed with water, and after being well rinsed in clear water, wrung out, and dried in the shade, it is rubbed with a sizing made of parched rice (the husk of which has been removed by heated sand), fine lime and water.

The principal varieties of plain muslins now manufactured at Dacca are, Mulmul Khas, Ab-ruwan, Shub-num, Khasu, Jhuna, Sircar Ali, Tun-zeb, Alabullee, Nyanzook, Buddun Khas, Turundam, Surbuttees, and Surbund—names which either denote fineness, beauty, or transparency of texture, or refer to the origin of the manufacture of the fabrics, or the uses to which they are applied as articles of dress. The finest of all is the Mulmul Khas (literally muslin made for the special use of a prince or great personage). It is woven in half pieces, measuring 10 yards in length and 1 yard in breadth, having 1,900 threads in the warp, and weighing 10 siccas (about 3½ ounces avoirdupois). The finest half piece that I have seen weighed 9 siccas. The price is 100 rupees. Some of the other muslins are also beautiful productions of the loom, as Ab-ruwan, compared by the natives, from its clear pellucid texture, to “running water.” Shub-num, so named from its resemblance, when it is wetted and spread upon the bleaching field, to the “evening dew” on the grass. Jhuna, a light, transparent net-like fabric, usually made to order, and chiefly for natives of rank and wealth, worn by the inmates of zenanas and dancers, and apparently the cloth referred to in the classics under the figurative names of *Tela arenarum*, *Ventus textilis*. All these muslins are made in full pieces of 20 yards in length by 1 in breadth, but varying considerably in the number of threads in the warp, and consequently in their weight.

Of figured fabrics, as striped (Doorea), chequered (Charkanee), and flowered (Jamdane), there exists a

considerable variety, both in regard to quality and pattern. The flowered muslin was formerly in great demand both in India and Europe, and was the most expensive manufacture of the Dacca Urungs. There was a monopoly of the finer fabrics for the Court of Delhi: those made for the Emperor Aurungzebe cost 250 rupees per piece. This muslin is still much admired, but it is now seldom manufactured of a quality of higher value than 80 rupees per piece.

Omitting the second-rate kinds of cloth, as Sarves, Boonees, Bastas, Jon, Ekpattus, Gamchas, &c., now entirely made of English yarn, imported into the district, and which constitute the great bulk of the Dacca cotton manufacture, the next class, of which specimens should be exhibited, is that of fabrics of a mixed texture of cotton and silk. They are designated by various names, as Nowbutta, Kutun, Roomce Apjoola, and Sirka; and when embroidered with the needle, as many of them frequently are, they are called Kusheedu. The silk used in their manufacture is the indigenous Muga silk of Assam and Sylhet, but the cotton thread employed is now almost entirely English yarn, of qualities varying from No. 30 to 80. These cloths are made exclusively for the Jeddah and Bussora market, and a considerable stock is yearly imported in the Arab vessels that trade between Calcutta and these ports. Pilgrims, too, from the vicinity of Dacca, not unfrequently take an investment of them, which they dispose of at the great annual fair held at Meena, near Mecca. They are used by the Arabs chiefly for turbans and gowns. The golden colour of the Muga silk gives to some of these cloths a rich lustrous appearance. A few pieces, made of native-spun cotton thread, and of the best kind of Muga silk, would, I have no doubt, be admired in this country.

Embroidery (*Zur-dozee*) is an art, in which the Mahomedans of Dacca display a degree of skill almost equal to that exhibited by the Hindoos in weaving. They embroider Cashmere shawls and scarfs, also muslins, and net fabrics with silk, gold and silver thread. These fabrics are much esteemed in this country, and are probably still unrivalled by similar productions in any part of the world.

Another branch of needle-work allied to embroidery, which is carried on here, is that of flowering or ornamenting cloths with cotton thread (*Chikan-kavi*). The dresses of Mahomedans are frequently worked in this manner, and two descriptions of it called Tartor and Sumunderludur, in which the texture of the cloth is broken down with the needle and converted into network, are held in the highest estimation.

In commissioning fine muslins from Dacca, ample time should be given for their manufacture. The time required for the preparation of a piece varies from one to four months, according to the quality of the fabric, the latter being the period necessary for the weaving of a half-piece of Mulmul Khas. The best season for making this kind of muslin is during the months of May, June, July, and August. If several pieces of the finer kinds were to be manufactured, a full year's notice would be required in order to procure the necessary quantity of thread.

Chittagong, which formerly possessed a factory subordinate to the one at Dacca, still manufactures inferior fabrics of strong texture. The rough towels made here are of an excellent quality; they are stout and durable, and would be found to be superior to the Baden towels, now so much used in dressing rooms in this country.

The Garrow, Tipperah, and Chittagong hills produce a large quantity of inferior cotton, called Bhoga. It is the principal article of traffic which the hill people bring down to the plains. It is used in the manufacture of the inferior kinds of hummums, bastas, boonees, sarces, jore, &c.; also for making ropes, tapes, and the coarsest of all fabrics, viz., garhals and gazehs, which are commonly used for packing other cloths, and for covering dead bodies, for which purpose a large quantity of these is consumed annually both by Hindoos and Mahomedans.

As Dacca was formerly famous for its muslins, so were

the Northern Caucasus for their long cloths. The former has sent some beautiful specimens of muslin, both plain, figured, and embroidered with silver. But Chanderoytar in the interior of India, in the Gwalior territories, has also sent some beautiful muslins. These are manufactured of cotton grown at Nurgar, some hundred miles distant from the dryness of the climate; the weavers, who are Mahomedans, are obliged to weave these fine muslins in cooling and breezy places. The finest piece of long cloth has been sent by Mr. Masters from Jurgampettah, in the Northern Caucasus. Fine muslins have been sent from Amoy, Amoy, Ougala, and beautifully embroidered by the weavers of the Northern India.

Some of the fibres of cotton are extremely interesting as specimens of the way in which the patterns in which patterns are woven through the grain and the various specimens of double weaving, which two distinct colours and the upper and lower together, and ultimately show the same as one piece of cloth.

The woollen fabrics are not so likely to be of a superior quality for a hot country, but it is interesting to have them from the mountains of Mysore and the plains of North Western India, and to see the wool of the sheep and of the kids of the country. The kid cloth of Cashmere is beautifully soft, and a new fabric called Porevuz, of which the pile of the surface is formed of loops, is interesting, but the shawls of Cashmere are celebrated throughout the civilized world. Mr. Moffat informs us that the wool used in the manufacture of the shawls of Cashmere is of two kinds. Of these one is called Pashm shah, and the other Asah too, the former being obtained from the goats in a domesticated state, and the latter from the wild goats and wild sheep, &c. All these animals, as well as the yak and dog, in the elevated cold and dry regions of Tibet, being furnished with a fine down, or hair-like wool, under the coarse common outer wool. This is brought from the different parts of Tibet to Ladakh, where it is purchased for or by the Cashmerians, and carried into their valley. Much of it is white, and sold a few years ago for 1s. a pound; the darker coloured is well suited for dyeing. The long hairs are picked out, the remainder can fully washed in warm water, and then hand-spun by women. A variety of kinds are necessarily employed in the manufacture of shawls. An artist designing the patterns might obtain a sale for them even in Europe, as they are so generally admired and imitated. A team is employed in determining the speed and quantity of thread required for a pair of shawls, and another in arranging the warp and wool (the former of which is generally of silk for the border). The yarn is first dyed; the Cashmerians professing to employ sixty-five different tints. The shawl is carefully washed when the weaving is completed, and the very first are said to be washed in a bath formed of soapberries.

A sub-committee having been appointed by Calcutta to report upon the selection of Cashmere shawls, Benares' blue cloth, and Deodars, have furnished a report which is particularly valuable, from Dr. Falconer, one of the members, having been for some time in Cashmere, and thus an information which is not otherwise obtainable. It is then forwarded published.

The Sub-Committee appointed to report on Cashmere shawls, Deodars, and other articles of manufacture that may require consideration for their repatriation, having met and considered the subject referred to them, submit the following as their report:

"I. Cashmere shawls. The Sub-Committee are of opinion that the Cashmere shawl fabrics are more likely than any other article of Indian manufacture to admit of successful competition with the productions of the looms of Europe, and that it is extremely ought to be spared to get the best specimens possible. These are not nearly found in the market, and it is not easy to acquire a pair of shawls of the best pattern, which may vary from a year to eighteen months in their manufacture.

"2. The articles made of shawl wool are of infinite variety, ranging from carpets, quilts, saddle-cloths, em-

pies, dish-covers or napkins, to shawls, gorse-pieces, cravats, turbans, choghas or cloaks, waistcoats, stockings and gloves, embracing almost every kind of fabric used in an article of dress. But the Sub-Committee are not prepared to recommend that all these fabrics should be sent to the Exhibition. They leave the consideration of the selection to the deliberation of the General Committee.

"3. The principal articles of pashmina or shawl manufacture may be classified under the following classes—

- I. Doshalla or long shawls $3\frac{1}{2}$ by 11 guz.
- II. Kussala or square shawls $1\frac{1}{2}$ or $2\frac{1}{2}$ guz square.
- III. Jamewars or striped shawl pieces $3\frac{1}{2}$ by $1\frac{1}{2}$ guz.
- IV. Ulan or plain white shawl cloth.
- V. Miscellaneous, such as carpets, em-pies, saddle-cloths, and various articles of dress, stockings, gloves, turbans, &c.

"I. Doshalla or Long Shawls.

"4. Doshallas or long shawls, invariably manufactured and sold in pairs, are the most esteemed production of the looms of Cashmere. They vary greatly according to the richness of the patterns, all of which are distinctly named, and according to the colours of which the dyers produce, make upwards of fifty tints, but the Sub-Committee will confine themselves to the leading colours, viz. black, white, crimsons, purple, blue, green, and yellow.

"5. Of the finest doshallas, the principal varieties of pattern depend upon the amount of decoration of either centre-piece, the pulla or border-pieces being accordingly flowered. The following are the leading kinds—

1. Khale mittan or plain field shawls.
2. Poor mittan or full-flowered field.
3. Chand-dar, chautahi-dar, alifda keonj, &c.

According to ornament, being a moon or circle in the centre, four half moons, green sprigs on a plain ground, a group of flowers at the corners, or any combination of these.

"6. The Sub-Committee would restrict their consideration of the colours to eight kinds, viz.: 1. White, silver, safford, 2. Black, moos-hee, 3. Crimson, gochar, 4. Scarlet, kernisi, 5. Purple, ooda, 6. Blue, fev-zee, 7. Green, zugree, 8. Yellow, zuril.

"7. Fine long shawls with plain fields of lead patterns (khale mittan), are procurable at about 100 rupees per pair; and full flowered, poor mittan, at about 1500 rupees. Taking the average of these 1350 rupees as representing the price of the third class, including chand-dar, chautahi-dar, &c., and as the average price of the whole; and supposing a pair of each of the above eight colours were ordered of the three several classes of pattern, we should have twenty-four pairs of shawls at 1350 rupees, making 32,400 rupees in all.

"8. In framing this part of the estimate, the Sub-Committee do not mean to recommend that the order should be so extensive; they are simply desirous of furnishing to the General Committee the detailed grounds upon which a suitable selection could be made. If the shawls were ordered single, instead of in pairs, which they believe to be practicable although not the custom, the estimate would be reduced to 16,200 rupees. Further, they would suggest that some of the wealthiest native gentlemen at Calcutta be selected to send their best shawls of different colours for the inspection of the General Committee so as to simplify the labour of selection. The government toshi khana might also furnish a considerable number of various patterns.

"II. Kussalas or square Shawls.

"9. Kussalas or square shawls, called also Rasmals, are of two classes, viz. Kamee roozal, or loom-manufactured, and Kamee roozal, or needle-embroidered shawls. The former are made singly to the taste of the Europeans, and the long shawls, and are made and sold singly. The latter are of the same range of colour and pattern as the long shawls, and the Sub-Committee frame their second estimate accordingly. The needle-worked kinds are

much cheaper than the loom-manufactured, and the embroidery is far superior in pattern and execution to the scarfs and shawls embroidered at Delhi. Assuming eight colours and three patterns of each of the Kamee roomal, at an average of 400, 300, and 500 rupees each, twenty-four square shawls would cost 9,600 rupees; and the same number of needle-worked of Umlee roomals, at an average of 225, 150, to 300 rupees, would cost 5,400 rupees.

" III. *Jamewars*.

" 9. *Jamewars* form the third great class: they are handsome striped loom-wrought fabrics of rich patterns, of which the French striped coloured muslins are printed imitations. They are manufactured of an infinity of patterns, but the principal kinds are the Rega-bootha or small flowered, the Kirkha-bootha or large flowered, and the Jhaldar or netted patterns. The most elaborately worked cost as much as 2,000 rupees each. Ten pieces would include a fair variety of patterns at an average, say of 600 rupees each, making 6,000 rupees.

" IV. *Ulwan*.

" 10. *Ulwan*, or plain shawl wool-cloth, is woven like plain muslin without flower or ornament, and is made in pieces of various lengths. It forms the centre portion or mitton of shawls, and is used for turbans and cummurbunds. It is well adapted for ladies' dresses. Eight pieces of twenty yards each of the different colours above named, at six rupees per yard, would cost 960 rupees.

" 11. Another fabric is made which may be included under the same head as *Ulwan*, called *Muledah pushmina*, being intended to imitate European broad cloths. It is formed of *Ulwan*, manipulated in a peculiar manner in water, so as by rubbing to tease out the wool of the thread and raise it into a nap. A piece of twenty yards, at six rupees, would cost 120 rupees.

" 12. A coarser fabric, of the same class, is manufactured in the Hill State, to the north-west of Simla, called *Puttoo peshmina*, which possesses great softness and warmth—in many respects rivaling fine broad cloth.

" V. *Miscellaneous*.

" 13. The miscellaneous articles of shawl-wool fabric are exceedingly numerous. They may be classified—

" 1. Articles of dress:—*Choghas Ulkbaliks*, *Pasteen Shumlas*, or *Cummurbunds* and *Loongees*, made in imitation of the silk *Loongees* of *Mooltan Gosh-pech*, or *Dustars* turban pieces. *Gulloobunds* or *cravats*, of great variety. *Pistan Bunds* or neckerchiefs. *Nukash Zerposh* or trousers. *Takhum caps*. *Toorab*. Short stockings (*Gooldar*), flowered and *Nuhramut stripes*. *Moseh long stockings*. *Charkhanna* or loose robe for women.

" 2. Articles of furniture:—*Khalin Peshmina carpets*. *Durpurda* and *Takposh screens* and curtains, for doors, windows, and recesses. *Pulung-posh* or quilted coverlets. *Khan-posh*, dish-covers, and napkins, horse furniture, &c. *Kuzzur-i-asf*, saddle-cloths. *Kuzzur-i-fl*, elephants' housing. *Sacewan* or canopies, tents, &c.

" 14. The Sub-Committee have not gone into the details of the prices of these miscellaneous articles, as they do not consider the arrangements requisite for procuring them to be of the same emergent character as those required for the leading classes of the shawl articles. With regard to the latter, they are of opinion that no time should be lost in determining the number and variety of the articles required for the Exhibition, and in submitting a representation to Government on the subject, that the necessary measures for procuring them may be put immediately in operation.

" 15. The Sub-Committee find, from a memorandum communicated to them by one of their members, that *Kimkhabas*, *Tase*, *Budlas*, and other descriptions of ordinary brocades, are readily procurable to order on two months' notice, at *Kassim Bazaar*, and *Benares*. With respect to these articles, therefore, it is not necessary to anticipate the reports of the local committee at those stations. But there is a gorgeous and very expensive class of brocades, manufactured with solid gold wire

drawn out into fine thread, which cannot be had without six or eight months' previous notice. They would recommend, therefore, that three pieces of *Kim-Khab*, and three of *Tase*, of the latter description, be provided for on emergent order.

" 16. With regard to *Dacca muslins*, the Sub-Committee understand, from a memorandum furnished by Mr. Agabeg, that the finest descriptions, such as *Mulmul-Khas*, take fully twelve months to prepare, one sicca weight of the thread requiring three months to be spun. They would recommend that measures be adopted for an immediate order of the fabrics of this description. A detailed memorandum with an estimate of the prices are appended.

" 17. The procuring of the more ordinary sorts of *Dacca muslin* may be left to the *Dacca Local Committee* to arrange for.

" 18. The Sub-Committee have confined their attention to the three classes of fabrics above reported on, viz.: *Cashmere shawl fabrics*, *brocades*, and *Dacca muslins*.

" H. FALCONER, M.D.

" JOSEPH AGABEG.

" JOBYKISSEN MOAKEEJEE."

Silk has long been known in India, but is supposed by some to have been brought from China, as in some old works it is called cloth of China; but we know that there are also several species of silkworm, as the *Tussur*, *Eria*, *Mooga*, and *Gooree*, indigenous to the forests of different parts of India. The silk of Bengal was originally inferior in quality and carelessly wound. The East India Company, in the year 1757, sent a Mr. Wilder to improve the winding of silk, and, in the year 1769, other Europeans, as drawers, winders, reelers, and mechanics. The filatures were all in Bengal, to the southward of 26° of N. latitude, for the north-west provinces are much too hot and dry for the silkworm. It is probable that the silk culture might easily be carried on in the valleys of the Himalaya. Some fine specimens of raw silk have been sent from Bengal, as well as from Mysore. The silk goods sent by Messrs. Jardine and by Messrs. Vardon have been much admired, as well as the *Cashmere silks*, for their substantial nature and for their moderated tone of colouring. On the Bombay side we may see that the raw material is imported from Bengal and from China, and that the manufacturers have attained a high degree of skill and excellence. Among these are pieces of silk which, like the cottons mentioned before, are remarkable for being of different colours on the two sides. These are from Poona and Ahmednuggur.

Both calicoes and muslins, as well as woollen cloths, are employed by the natives to embroider, and some beautiful specimens in all the materials, and from different parts of India, have been sent to the Exhibition; and whether we examine one worked at *Dacca* or at *Delhi*, *Madras* or *Mooltan*, *Cashmere* or *Khyrpoor*, and whether in silk, silver or gold, we see great variety and taste displayed in the patterns, for even the most flowery or gorgeous are so kept within bounds as to appear never to exceed what is appropriate to the purpose for which the article is made. This we see equally in their woven as in their embroidered fabrics, as much in the rugs of *Ellore* and the carpets of *Mirzapore* and *Goruckpore* as in the shawls of *Cashmere*, and not more in the shawls than in the carpets of that far-famed valley.

India has long been famous for its steel, and the natives were early acquainted with the process of welding iron. Golden armour is frequently mentioned in the *Rig Veda*, that is 12 or 1400 years preceding the Christian era; and different parts of the country are famous for their works in copper and brass, as well as in silver and gold. As the natives employ the two first for the greater part of their cooking utensils, and the two last both for useful and ornamental purposes, there has always been a great demand for these different works in metals: all are remarkable for the goodness of their shape, whether made of copper or brass, or of the inlaid work, called *Bidry*.

There is great elegance in the silver service, inlaid with mosaic from Cashmere. The same elegance of form is seen in the rose-water sprinklers, or goolabas, which are employed to sprinkle rose-water over departing visitors. Much of the jewellery, though rich and handsome, is peculiar, because the tastes of the natives, and the modes of wearing it, differ from those of Europeans. A great variety as well of jewelled boxes have been sent by the Maha Rajahs of Nepal and Cashmere, and by the Rajahs of Rajpootana and of Cutch. The gold and silver girdles of Vizianagram are as perfect in workmanship as the gold chain of Trichinopoly is elegant.

Dacca is one of the places celebrated for its silver filigree work; Cuttock and Agra are others: from all of which specimens have been sent. The articles usually made are bracelets, ear-rings, brooches, and chains; also groups of flowers, attardans, and small boxes for natives, of all of which beautiful specimens have been sent. Mr. Taylor says, the design best adapted for displaying the delicate work of filigree is that of a leaf. It should be drawn on stout paper, and of the exact size of the article intended to be made. The apparatus used in the art is exceedingly simple, consisting merely of a few small crucibles, a piece of bamboo for a blowpipe, small hammers for flattening the wire, and sets of forceps for intertwisting it.

The drawing of silver and gold wire, i.e. silver covered with gold (used as thread in embroidery), is extensively carried on at Dacca. Benares is also celebrated for the art. The preparations of the gold-wire for the fabrics of Boorhanpore has already been described at p. 920. There are several varieties of silver and gold thread (Badla) made at Dacca, as Goolabatooro for the embroidery of muslins and silks; Goshoo for caps and covering the handles of chowries; Sulmah for turbans, slippers, and hookah snakes; and Boolun for gold lace and brocades. Some of it is drawn as fine as a hair.

The beauty of form is still more conspicuous in much of their *Pottery*. Many of the forms are those which are most admired, as being of classical shapes. Some of the vases even look almost as if they were of Etruscan origin. There is no reason to believe that the natives have ever had anything but their own unerring taste to guide them, whether at Bhagulpore or Moradabad, at Kotah, Ahmedabad, or near Nagpore.

The natives of India having long been acquainted with a number of manufactures which are supposed to have originated in Europe, but of which there is no doubt that traces may be found at still earlier periods in the East. Some of these are of a chemical nature, as for instance, the crystallization of sugar and the manufacture of indigo, as well as that of gunpowder, of which several specimens were sent in the powder-flasks which accompanied many of the matchlocks, for which their country even now supplies the saltpetre for Europe. Red ink they obtain by the action of reagents on safflower, &c.; and black ink both by a process similar to our own, and by another which more nearly resembles that for printers' ink, which is better suited to their paper. Paper is another of the useful inventions which has long been known in the East. In India is made from a variety of materials, as from cotton, and of late years from plantain fibre. In Cashmere the fibre of hemp seems also to be employed, but throughout the Himalayas the pulp obtained from the fibre of *Daphne cannabina* is universally employed. With it have been made the large sheets of Nepal paper. The manufacture of leather seems also to have been long practised, and to have been used for making shoes and shields. The specimens which have been sent are of excellent quality; but these no doubt owe their peculiar qualities to European superintendence, as the leather from Calcutta was prepared by the Messrs. Teil, and that from Hoonsoon at the Government cattle establishment of that place. But Cashmere has been long famous for its leather; and Moorcroft, an excellent judge, describes it as "strong, solid, heavy, and pliable," and this without European aid, as in the case of the coloured specimens of leather from the Rao of Cutch. Glass-

making is another art with which they are acquainted, but in which they have made little or no progress, as the glass is discoloured and used only for bangles and small bottles. These are the chief articles of manufacture; but the author has succeeded in getting the glass-blowers of the north-west to make him very fair barometer and thermometer tubes out of broken European glass.

Dyeing is a strictly chemical art with which the Hindoos have been acquainted from very early periods, though no improvements appear to have been made in it for ages. Their country yields an abundance and a variety of raw materials as we have seen in the list of dyes; the mordants which they employ are chiefly alum and salts of iron, while the alkalies and acids which they likewise employ can be considered as useful only in changing the shades of colours. Calico-printing is universally acknowledged as being of Indian origin, and an art which was known to the Egyptians, as mentioned by Pliny, in a passage frequently quoted. Though the art has so greatly advanced in Europe, the Indian patterns still retain their own particular beauties and please multitudes of admirers, due no doubt, in a great measure, to the command which the natives of India have of colours, and the admirable taste with which they harmonise complicated patterns. Of some parts of the art, as for instance printing on gold, which has been only recently practised in Europe, some excellent specimens have been sent from Western India.

Having so early practised many of these arts, it is very remarkable that the Hindoos should for so many ages have remained satisfied with the progress they had made. This has been ascribed in a great measure to the distinction of castes, and to the political condition of the people. That they are capable of greatly improving in the different useful arts, is evident from the works which are turned out of the Government magazines and arsenals, and as may be seen in the accoutrements, and in the models of the artillery from the different Presidencies. The same thing may be seen in the teak-shipping built at Bombay. The saw-gins made in India are said to do their work as efficiently as those of England or of America. On the present occasion we have harness as well as boots from the Messrs. Monteith of Calcutta, which would do credit to any shop in London or Paris. So also the ropes made in imitation of those in use in Europe, as sent by Messrs. Harlon and Messrs. Thompson, from Calcutta. The neatness of their work may also be seen in the model of the crushing-machine sent by the Commissary-General of Madras, and the delicacy and accuracy of machinery made by their hands in the coin-sorting machine of Major Smith.

The Hindoos are remarkable not only for the exquisite skill which they display in the fabrication of the smaller works of fancy, but for the patience and resolution which they display in the excavation of their rock-cut temples, and for the beautiful polish which they have given to the surface of the hardest rocks. Dr. Kennedy has described the tools with which the Hindoo workman performs these works. They consist of a small steel chisel and of an iron mallet—"with such simple instruments they formed, fashioned, and scraped the granite rock which forms the tremendous fortress of Dowlatabad and excavated the wonderful caverns of Ellora; for it seems by no means probable that the Hindoo stone-cutters ever worked with any other tools." The mode in which they polish these masses of granite are the same in principle as has already been described as being practised by the stone-polishers of Cambay, pounded corundum mixed with melted bees' wax being let into the hollow of a heavy block of granite, which is moved backwards and forwards until the required polish has been produced. We may be less surprised, therefore, with the polish given to the smaller articles of agate and cornelian, for which not only the workmen of Cambay but also of Cashmere have so long been distinguished. In the jewel-cases of the Indian department, we have some beautiful specimens from Lahore of crystal cups as well as agate boxes inlaid with precious stones. Baron Hugel states having seen in Cashmere a vase of

crystal which four men could scarcely lift. There could be no difficulty in carving in marble or other stone, but we cannot the less admire the beautiful patterns of the stone screens from Mirasore. Such screens usually of marble are often used for surrounding the tombs in the old buildings of Agra and of Delhi. The skill in carving is equally displayed in softer materials, as in sandal-wood and ebony, and also in the black-wood (*Dalbergia latifolia*), of which so many specimens may be seen in the furniture made at Bombay. This skill is also displayed by the ivory-carvers of Berhampore, the shell-workers* of Decoa, and in the horn-work of Vizagapatam and of Visiadrang, and in that of the cocoa-nut at Tanjore, and still more in the delicacy with which the figures of the Rajah and Ranees of Travancore are produced, in so soft and yielding a material as pith.

The fine arts have hardly attained that excellence in India as to require much notice, except as connected with the objects within the limitations of the Exhibition. Painting has never attained to any excellence, though the natives are admirable delineators of some objects, as of natural history, which they can copy to a hair, without, however, any attention to perspective. The paintings on talc which are exhibited are interesting as exhibiting trades and costumes. Their sculpture, though employed in the representations of their gods and goddesses, has never succeeded in giving good views of the human figure; and yet they would seem capable of effecting much, for the models of the figures of the various castes are very successful in the variety of expression which they impart, and their success is great in the carving of some animals; as, for instance, in the head of the elephant in ivory, from Berhampore; also in the stone figures of the elephant, rhinoceros, and sacred ox. Their stone, wood, and ivory carving might even be considered as coming within this section of the fine arts, from the beauty of the patterns and the elegance of effect which is produced.

Engraving on gems has long been practised in the East, and with great success, as far as ornamented letters are concerned. Of these there are some favourable specimens from Delhi; and from Madras, we have stones engraved, representations of a lighthouse, and monuments.

The mosaics from Agra, as shown in the marble chess-table inlaid with agates, as well as in inkstands, card-trays, &c., are favourable specimens of the art. Though it is sometimes said that this art may have been introduced into Agra from Italy, it is not more elegant in pattern than the inlaid work, for which the metal-work called "bidry," is conspicuous, and for which the inlaid silver service and bedstead from Cashmere is so remarkable. This beauty of pattern, so conspicuous in the shawls of Cashmere, is also displayed with remarkable taste in the several boxes and pen-and-ink trays from the same part of India.

Architecture is at least one of the fine arts in which the Hindoos have excelled, as their style is their own, and the effects which they produce peculiar and striking, and this whether we examine the carved temples of Ellora, or the pagodes of the Peninsula; of these, the pith models are the only representatives in the Exhibition. The models which are exhibited from Benares and Mirasore show the ordinary form of the temples in the valley of the Ganges, while the models of the Masjid or mosque and Hindoo temple from Ahmedabad show a different style of architecture.

From the very cursory view which we have taken of the arts of India, we cannot but allow that the natives of that country, with but simple means and their unassisted efforts, have produced works which we cannot but admire, even after wandering in all the courts of the Crystal Palace dedicated to the arts of Europe; and, if we doubt our own judgments, we may refer to the numerous artists

who may daily be seen employed in drawing and studying the works of a people whom many consider as placed beyond the pale of civilization, but among whom we may see the practice of many useful arts, which we sometimes fancy our own, because the Moors introduced them into Europe; and we may observe, also, the germs of some discoveries which we know have only recently been matured in Europe, though we have no means of judging whether the idea may not, in some instances, have come from the East.

We cannot do better than conclude, therefore, these hastily-written observations on the arts and manufactures of India, in one of the mottoes of the Official Catalogue—"SAY NOT THE DISCOVERIES WE MAKE ARE OUR OWN: THE GERMS OF EVERY ART ARE IMPLANTED WITHIN US, AND GOD, OUR INSTRUCTOR, FROM HIDDEN SOURCES, DEVELOPS THE FACULTIES OF INVENTION."

CEYLON.

NORTH ARRAS, I. J. 81.

COLLECTION OF NATURAL PRODUCTIONS AND MANUFACTURES OF THE ISLAND OF CEYLON:—

Rock Crystal. Iron and common quartz. Amethyst. Garnet. Cinnamon stone. Harmotome. Hornblende. Hypersthene. Common corundum.

Ruby. Chrysoberyl. Zircon. Mica. Adularia. Common felspar. Green felspar. Albite. Chlorite. Pinite. Black Tourmaline. Calc-spar. Bitterspar. Apatite. Fluor-spar. Chialtolite.

Iron pyrites; magnetic iron pyrites. Brown iron ore. Spathic iron ore. Magnetic iron ore. Titaniferous iron ore. Ironglance. Manganese. Molybdenglance.

Tin ore. Arseniate of Nickel. Plumbago. Epistilbite. Gadolinite. Wolfram. Crichtonite. Ilmenite. Pyrochlore. Binnerite. Ceylonite. Cabook. Kaolin.

[The geology of Ceylon is imperfectly known in detail, but it appears that various porphyritic rocks and gneiss chiefly prevail, the latter covering the largest area, but the former exhibiting many very interesting varieties. Sandstone occurs to some extent, and some calcareous rocks and dolomite have also been described.

The mineral produce of the island is somewhat varied and of considerable value, and many of the minerals mentioned above are of considerable interest. Of the metals, iron and manganese abound, while several gems (cat's-eye, ruby, and sapphire), plumbago, salt, and nitre, are also important sources of profitable trade. There are several thermal mineral springs, considered valuable for medical purposes.

Some varieties of precious corundum of considerable value have been found in Ceylon, but Pegu is their chief locality. The Ceylon plumbago is soft, but remarkably pure. The salt exists in natural deposits, and is an important source of revenue. Nitre is found in caverns, and is widely distributed. Of the various minerals mentioned above, *Gadolinite* contains the rare earths yttria and glucina, and *Pyrochlore*, the equally rare substances, columbium, cerium, and thorium. *Cabook* is a reddish loam, resulting from the decomposition of clay iron-stone.—D. T. A.]

GREY, The Countess.

A gilt sprinkler under a glass shade, from Ceylon.

ALBRECHT, GREENHILL, & Co.

Cinnamon and cinnamon oil.

Cocoa-nuts, from the South and West Provinces. Rice, general. Arrow-root, from the South Provinces. Manioc, from the West and South Provinces. Hill paddy, from the Central Province. Curugan, general. Maize, from the

*—The manufacture of shell bangles is one of the indigenous arts of Bengal, in which the caste of Shankar at Decan excels. The shanks of which they are made are large conch-like shells (*Polata granis*, Linn.), from six to seven inches long, and of a pure white colour. They are imported into Calcutta from Ramanad and Southern India, opposite to Ceylon, and from the Maldivé Islands.

South and Central Province. Millet and Tinne, from the same.

Coffee, from the Central Province, chiefly. Cardamoms, from the Four Korles, Galle.

Cinnamon, from the Western Province.

Tobacco, from Jaffna, Negombo, Tangalle. Ginger and nutmegs from the Western Province. Yams and sweet potatoes. Talipot leaves, from the Central Province.

Cocoa-nut sugar, from Batticaloa; Palmyra sugar, from Jaffna; Cane sugar, from the Western Province.

Manioca flour, from the West and South Province. Arrow-root flour, from the Southern Province. Sago, from the Northern Province. Vinegar.

Cotton, native, Bourbon and Sea Island; from Batticaloa and Jaffna.

Coir fibre, from the South and West Province.

Gamboge and tamarinds, from the West and East Province.

Areca nuts, from Four Korles.

[The areca nuts mentioned are yielded by a palm, and are highly esteemed by the natives of the East. They prove a not unimportant article of commerce, and one also employed, to a small extent, in the arts. But they are principally valued for a sort of inebriating property which they possess, and which is perceived in chewing them. Those who become addicted to this habit, which is almost universal, are passionately attached to the use of these nuts.—R. E.]

Copperah, from the East and West Province. (Copperah is the dried kernel of the cocoa-nut, which abounds in the South.)

Timber, general. Clearing Nut, from the North West and East Province.

Aloe fibre, carlamum, plantain, and hibiscus fibre, from Kandy and Colombo.

[The bark of several species of *Hibiscus* is so tenacious as to yield a serviceable material for textile purposes. For the manufacture of a coarse kind of cordage it is considerably employed, and the fibre is likewise used for making a coarse description of sacking. The *Hibiscus* belongs to the Malvaceous variety of plants.—R. E.]

Ivory and buffalo horns, from the North and East Province. Deer horns, from the Central and North Province.

Birds' nests, from Pasdoom Korle.

Honey and wax, from Bintenne.

Hides and hoofs, from Colombo.

Musk, from the Northern Province.

Clay, a root, or Indian madder, from the Northern Provinces.

Jack and malille, or halmalille woods, general.

Sappan wood, from the West, South, and East Provinces.

Turmeric and myrobolans, from the East Coast.

[The turmeric of commerce is yielded by a plant belonging to the natural order *Zingiberaceæ*, and botanically called *Curcuma longa*. It is largely used in the preparation of various condiments, and also for dyeing. It has likewise medicinal properties. The analytical chemist is accustomed to prepare slight testings for alkalis by the aid of paper coloured with turmeric, the change of colour affording him the information he requires.—R. E.]

Pearls, Arcjso.

Chalks, from the Northern Province. Jaffna moss, from Calpenty.

Sponges and cowries from Jaffna and Trincomalee.

Salt from Chelaw and Hambautotte.

Beche de mer, from the Northern Province.

[Beche de Mer is a radiated animal of the *Holothuria* tribe.]

Oils: cocoa nut, purified, cinnamon, clove, citron,

lemon grass, and cajeputi, from Colombo, Galle. Margos oil, from Kandy. Croton and castor oils, from Colombo. Kekuna and gingelly oils, from Kandy. Citronella, neem, and spearmint oils, from Galle. Mee oil, from Colombo.

Models of carriages and palanquins, from Colombo. Chekooa, from the Western Province.

Looms; stills (medical), from the North, North West, and South Provinces.

Forges; smelting furnaces, from the Central and South Provinces.

Models of boats; guns; weapons, general, Kandy, &c. Agricultural tools.

Cotton fabrics, plain and dyed, from the North, East, and South Provinces.

Cotton fabrics, painted, from Kandy.

Lace, from Galle.

Cutlery, general.

Gold and silver ornaments, from Kandy, Jaffna, Galle, &c.

Crockery, plain and painted; and four toms, from Kandy and Matura.

Matting, from Kandy and Caltura.

Coir cordage, from the Southern Provinces. Coir webbing and bagging, from the Southern and Northern Provinces.

[Among the almost innumerable uses to which the cocoa-nut palm, *Cocos nucifera*, has been applied, that of yielding a fibre for the production of cordage is not the least important. This fibre, called *coir*, is obtained from the rind of the nut. It is manufactured, on an extensive scale, into cordage, webbing, bagging, &c., and possesses certain properties which practically fit it for this purpose. Being little acted on by water, and at the same time extremely tenacious, the rope made of it is valuable for maritime purposes. The fibre is too coarse for any of the finer textile purposes.—R. E.]

Aloe bagging, from Kandy. Hibiscus bagging, and cordage. Sanserira bagging, from Colombo.

[The Sanserira bagging is obtained from the fibre of a hibiaceous perennial plant, abundant in tropical Africa and India generally. The fibre is extremely tough, and answers for the manufacture of coarse materials, such as that described. Several other plants of the same order are found to yield a useful fibre for textile purposes.—R. E.]

Tortoiseshell and Chank ornaments, from Kandy, Matura, and Galle. Fishing lines and nets.

Baskets and boxes; quill, deer horn, buffalo horn, and straw, from Caltura and Galle.

Kandy painted baskets and boxes; umbrellas; punkahs, from Kandy.

Ornamented olas soap, from Kandy and Matura, Galle.

Carved work, ebony, from Galle and Caltura; ivory, from Four Korles; woods, from Galle and Caltura; steel, from the Central Provinces; cocoa-nut shells, from Galle; and egg shells, Kandy.

Models of Temples, from Colombo.

PARLETT, O'HALLORAN, & Co., Colombo.

Specimens of cinnamon, with essential oils extracted therefrom; with implements for cutting and peeling.

An ebony table, inlaid with fifty different woods; a fair specimen of Cingalese cabinet-work.

Model of coffee-works and apparatus used in Ceylon. Model of patent stove and apparatus for curing coffee, by M. Clerihew, of Rathnagon.

Thirty specimens of medicinal oils, from T. A. Pieris, of Kandy.

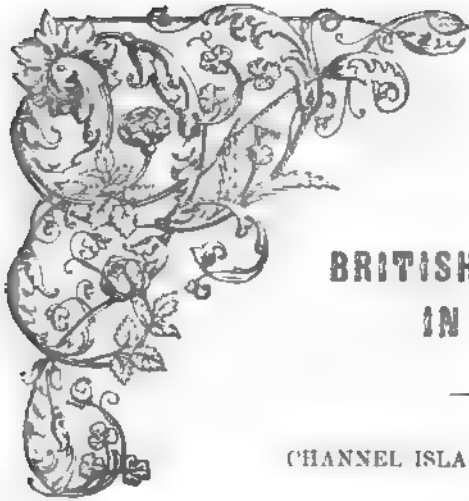
Guns and resins from T. A. Pieris, of Kandy.

Forty specimens of ornamental and house-building timber.

Desk of porcupine quills. Ebony-carved flower vase.

Painted ivory fan-handle.

Buffalo horns mounted in silver.



II.

BRITISH POSSESSIONS IN EUROPE.

CHANNEL ISLANDS.—MEDITERRANEAN.

For special information on the general characteristics of the contributions forwarded by different places coming under this head, reference will be made to the commencement of each. A short prefatory notice is intended to furnish a sketch in outline of these, and is attached to each separate catalogue. The dependencies included under this head are in numerical order—the Channel Islands, Malta, and the Ionian Islands.—R. E.

CHANNEL ISLANDS.

NORTH SIDE, I. J. 30.

Commissioners—Captain W. WALBANK CHILDEES, *Terrace House, St. Helier, Jersey*, and THOMAS CLUGAS, jun., Esq., *New Grand Terrace, Guernsey*.

THE Channel Islands, which are represented in the Exhibition by nearly fifty exhibitors from Jersey and Guernsey, have supplied an interesting and characteristic collection of articles in the various classes. The geological character of this group, which belongs to the primary rocks exclusively, is indicated by a collection in Class I. of the granites and other rocks of that series entering into the formation of the islands. These rocks are extensively quarried for building purposes, and the granite and syenite, particularly the latter, are highly valued and possess a fine grain. Several of the streets of the metropolis are paved with granite from these islands, and monuments have been erected from some of the finest varieties. The islands are remarkable as containing no fossil remains, nor any of the derivative rocks properly so considered. The fertility of the soil is indicated by a collection of wheats grown in Jersey, and arranged with considerable care; and the important element in the adaptation of the soil to the requirements of the farmer—manure—is also shown, and consists of the burnt and fused ashes of marine plants. These plants are called by the inhabitants “vraic,” and are collected at stated periods. They contain, when burnt, a large proportion of iodine, and are useful as a manure from their other saline and earthy ingredients. Specimens of iodine obtained from vraic are exhibited. Specimens of silk reared in Guernsey are interesting, as suggesting attention to an important and probably ultimately a profitable direction for the employment of capital. Knitted articles of various kinds indicate the constant employment of the peasant women of these islands. A large sideboard of native oak, chiefly with carving repre-

senting the signing of Magna Charta, will receive notice. The natural history of the islands is represented by a collection of specimens of conchology. The shell-beaches of the beautiful island of Herm form the source of a great variety of species, and are the resort of every naturalist visiting these islands. The shells are formed into a number of ornamented articles, of which some are exhibited. The natural history of these islands is, in many respects, as in the case of other insulated spots, peculiar; but it is to the results of industry of some of the inhabitants that this Catalogue chiefly refers.—R. E.

1 WHITE, HENRY CAMPBELL, F.G.S., *Regent Road, Jersey*.

Geological specimens of the granites of Jersey, arranged by order of the local committee. Syenite from Mount Mado and La Brugne, St. John's Parish; St. Mary's, St. Breade, St. Clement, St. Aubin; Booley Bay, Trinity; and Verclut, St. Ouen; conglomerate, St. Catharine.

[The syenitic rocks, which are quarried chiefly at Mount St. Mado, in St. John's parish, Jersey, are commercially valuable. The other rocks, and particularly the conglomerate from St. Catherine's Bay, are interesting only to the naturalist and geologist. No traces of any metals, with the exception of iron, have been observed in Jersey, and the slates of the schistose rocks have not been used for economical purposes. The peculiar rigidity and wildness of outline of the rocks of the primary series is strikingly exemplified around the coast. Fantastic rocks of every form appear above the waters, and the steep cliffs of the northern shore are frequently hollowed into chasms and caverns. Notwithstanding the force and velocity of the tidal current around these islands, but little impression appears to be made upon them even by the roll of the Atlantic, the waves of which, when provoked by south-westerly winds, beat impetuously upon the coast.—R. E.]

2 LE COUTEUR, Col. JOHN, *Belle Vue, Jersey*— Producer.

Specimens and notes of produce of some of the most approved varieties of wheat cultivated in Great Britain, Jersey, &c., arranged by J. Le Couteur, F.R.S., M.S.A., Aide-de-Camp to Her Majesty the Queen.

White winter wheat.

Var. No. 1. Triticum Hibernum Hybridum Candidum Epulonum Leucospermum of La Gasca, ex-Curator Royal, Gardens, Madrid.

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| <ol style="list-style-type: none"> 1. Dantzic (Jersey). See grain. 2. Imperial bushels to the acre. 3. Chidham. 1838.—18 lbs. of flour produced 26 lbs. 4 oz. of excellent white bread. Nature dry. 3. Berkahire. 4. Lewin's Eclipse. 5. Clutton. 6. Whittington. 1841.—27 lbs. of flour produced 37 lbs. of good bread, rather brown. Keeps moist. 7. Brown Chevalier. 27 lbs. produced 36 lbs. 14 oz. excellent white bread. 8. Canada. 9. Burnell, from Earl Spencer. 1842.—27 lbs. of flour produced 36 lbs. white bread. | <ol style="list-style-type: none"> 10. Hardcastle. 11. Old Essex. 12. Pegglesham. 13. Ten-rowed Prolific. 14. Old Suffolk. 15. Earl Toham. 16. White Dantzic, Lincoln. 17. Old Lammas Prize, Devon. 18. Dantzic, Oxford. 19. Old Welsh white Lemon. 20. Mullybrack, Norfolk. 21. Pearl, Scotland. 22. French. 23. London Superior. 24. Royal Standard. 25. Baltic. 18 lbs. of flour produced 23 lbs. of bread. 26. Kentish long. |
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Winter compact varieties (Fr. *Froments carrés*; Ger. *Fierzeilige Weizen*).

Var. No. 2. Trit. Hib. Album Densum, of La Gasca.

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| <ol style="list-style-type: none"> 1. Jersey Pearl. 48 bushels to the acre. 18 lbs. of flour produced 24 lbs. of bread, white, dry nature. 1837. 2. Ducksbill, Kiel. 1836.—18 lbs. of flour produced 24 lbs. of bread, rather moist. 3. Britannia. 4. Buckland Tossaint, Devon. 5. Suffolk Thickset. 6. Mazzochino, Italy. 7. Buff Surrey. | <ol style="list-style-type: none"> 8. Chili. 1848.—27 lbs. of flour produced 34 lbs. 12 oz. brown heavy bread. Condemned, after seven years of trial, though suited to the stormy regions of the mountains of Chili. 9. Cape of Good Hope. 10. Coturianum Compactum, La Gasca. 58 bushels to the acre. 27 lbs. of flour produced 34 lbs. 2 oz. white bread, of a moist nature. |
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*Var. No. 3. Elongated winter wheat (Fr. *Froments allongés*; Ger. *Weizen Verlängen*).*

Trit. Hib. Candidissimum Epulonum of La Gasca.

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| <ol style="list-style-type: none"> 1. Dantzic, Jersey. See Grain. High-mixed, of commerce. 27 lbs. of flour produced 35½ lbs. of excellent white bread. 2. Cape of Good Hope, longest. 3. Cape of Good Hope. 1840.—27 lbs. of flour produced 37 lbs. 8 oz. of white moist bread. 4. Malaga. | <ol style="list-style-type: none"> 5. Lupo, Italy. 6. Gran Gentil et Rosso. This seed was seven years in the hands of the late Secretary of the Society of Arts. 7. Van Diemen's Land. 8. Crim Tartary. 9. Var. High-mixed, Dantzic. |
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*Var. No. 4. Downy, or hoary wheat (Fr. *Feloutés*; Ger. *Wolligeizen*).*

Trit. Hib. Koeleri of La Gasca.

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| <ol style="list-style-type: none"> 1. Kentish Downy. See Grain. B. V. 55 bushels to the acre. 18 lbs. flour produced 26 lbs. of bread, excellent quality. 2. Guinea, Norfolk. 3. Turgidum. 4. Imperial Buff. 5. Tunstall rough chaff. 6. Italian. | <ol style="list-style-type: none"> 7. Coturianum Confertum of La Gasca. 8. Red-grained. 9. Chili, 1850—to be tried. 10. Jersey, 20 lbs. 6 oz. of this flour, and 6 lbs. 10 oz. of bran, produced 39 lbs. 1 oz. of good bread, second quality. |
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*Var. No. 5. Red wheats (Fr. *Froments Rouges*; Ger. *Roth Weizen*).* *Trit. Hib. Glabrum Rufum of La Gasca.*

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| <ol style="list-style-type: none"> 1. Golden Drop. See Grain. 2. Red Hair Welsh. 3. Rattling Jack. 4. Old Red Norfolk. 5. New Red Norfolk. 6. Old Red Lammas. 7. Britannia. 8. Red Chaff Dantzic. 9. Blood-red Scotch. 10. Myer's. 11. York Square-headed. 12. Coplock. 13. Golden Prolific. 14. Red Burrill. | <ol style="list-style-type: none"> 15. Essex. 16. Prolific. 17. Sark, very hardy. 18. White Golden Drop. 19. Gigantic. 20. Grand Rubella. 21. Compact Red. 22. Kiel. 23. Cape of Good Hope. 1840.—18 lbs. of flour produced 25 lbs. 6 oz. of brown bread, of a dry nature. 24. Pale red Cape. |
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*Var. No. 6. Spring wheats (Fr. *Bleds de Mars Trémois*;*

*Ger. *Springen Weizen*). Triticum Aestivum Candidum Epulonum of La Gasca. Beardless (*Sans barbes*).*

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| <ol style="list-style-type: none"> 1. Belle Vue Talavera (Col. Le Couteur's Seedling). See Grain. 18½.—32 bushels to the acre. 1841.—27 lbs. of flour produced 35 lbs. 14 oz. bread of the finest quality. 2. Old proved Talavera, Spain. 3. Malaga. 4. Italian. | <ol style="list-style-type: none"> 5. Cape White. 1846.—27 lbs. flour produced 37½ lbs. white moist bread. 6. Mummy. Tombs of the Kings of Thebes. Sir Gardner Wilkinson. Raised at Belle Vue, from one ear, sent by M. Tupper, Esq., 1846.—27 lbs. flour produced 35 lbs. bread. Very light, white, superior. |
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*Var. No. 7. Bearded (Fr. *Blade-trémois barbus*; Ger. *Bartweizen*).*

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| <ol style="list-style-type: none"> 1. White Lily (Jersey). See Grain. 27 lbs. flour produced 38½ lbs. bread. Moist, white, superior. 2. Horned Red grain, Lincoln. 3. Brittany. 4. April. 5. Arthur's Jersey (hardy, and productive on poor soils). 6. Black-jointed 1841.—27 lbs. flour produced 37 lbs. of good bread. 7. Old White-hair Welsh. | <ol style="list-style-type: none"> 8. Old Red-hair Welsh. 9. Rivetta. 10. Coetbo, Brittany, elongated. 11. Coetbo, „ compact. 12. Spanish. 13. Victoria, Caraccas. 14. Kubanka of commerce. 15. Cape of Good Hope. 16. Italian Red. 17. Kiel, Baltic. 18. Italy. 19. Egyptian. |
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Total, 104 specimens.

Comparison and Result.

The Kentish or Jersey Downy Wheat:—In 1847, one quarter, or 463½ lbs., produced 351½ lbs. of flour, which produced 482½ lbs. of bread.

Baltic or Rostock Wheat:—In 1847, 454 lbs. of wheat produced 312 lbs. of flour, which produced 396½ lbs. of bread.

Downy, 482½ lbs.
Rostock, 398½ „

or 84 lbs. excess over the Rostock on one quarter; or excess over one acre, at 6 qrs. to the acre, 504 lbs. of bread—the supply of one person for a year. The excess over some inferior varieties, as to quantity of produce and yield of flour, being far greater.

Those varieties, to which explanations have been given, have all been tried by the exhibitor at Belle Vue.

[The agricultural productions of Jersey are wheat, barley, and oats: parsnips are grown; and potatoes for exportation are extensively and increasingly cultivated. For a series of years the present exhibitor has been occupied in classifying and arranging the varieties of wheat; and the facts developed by his experiments appear to give a high degree of fertility of soil to that of Jersey over the soil of other places. The uniformly mild and genial temperature of these islands generally forms undoubtedly a great element in the success which attends the labours of the agriculturist, and particularly of the horticulturist and florist.—R. E.]

3 DUNLEVIE, Mrs., *Belmont Place.*

A richly knit silk purse: worked by a lady 83 years of age.

4 BERLAND, J., *Great Union Road.*

A machine to stop railway carriages instantaneously.

5 LE MOYNE, HENRY, *St. Helier, Jersey*—Inventor.

Diagrams to elucidate the method of trisecting any angle. These diagrams are the exhibitor's invention.

[The trisection of an angle by plane geometry is a problem as impossible as the quadrature or rectification of the circle.—R. W.]

6 CHEVALIER, JOHN, *Don Street*—Inventor.

Model of a swinging beacon, for the prevention of shipwrecks, by marking the situation of rocks. Not liable to be damaged, or carried away by sea or shipping.

[The sea all around these islands is beset with rocks

upon which fearful shipwrecks have taken place, attended with great loss of life. Beacons of various kinds are placed upon them; but these are often of little avail, in consequence of the dense fogs which at times fill the Channel. An exhibitor in a preceding Class has recommended the adoption on some of these rocks of a lighthouse of brass, the dome of which might be converted into a great bell, which might be struck during thick weather.—R. E.]

7 DE LA CONDE, M., *Broad Street*—Manufacturer.

Specimens of artificial teeth, of novel construction, and with double hinges.

8 FELTHAM, R. D., 1 *Oxford Place, St. Marks, Jersey*—Inventor.

Spring skeleton regulator; will go without winding-up for 500 days: its peculiar novelty consists in the adaptation of a pendulum making but one complete vibration in sixteen seconds, with detached escapement; its execution is considered to be superior, from the combination of its motive power.

[The direction of the going of a clock without winding depends principally upon the increase of the weight employed to move it. By the introduction of several wheels, and the employment of a proportionate power in the weight or springs, the ordinary going period may be greatly prolonged; ordinarily, advantage is found from the less occasional necessity for winding up.—R. E.]

9 DUPRÉ, W. H., *Charing Cross, Jersey*—Inventor.

Defiance wind guard, for the prevention of down-draught, or the descent of smoke in chimneys. The outer pipes surrounding the stem are formed in a spiral direction from the base to the top.—Patented.

Another for the same purpose, adapted for any situation, whether surrounded by hills, or tall buildings.

Roof light of glass, in a zinc case; it allows ventilation and light, without leakage.

10 LE FEUVRE, PHILIP, *St. Clement Academy*—Inventor.

Orrery, for school use. This orrery shows the moon's motion round the earth, her daily variations, her position at the time of new and full moon; also, the cause of eclipses, and whether partial or total: the phases of the moon are indicated by cones constructed of pasteboard attached to the earth and moon.

11 LE FEUVRE, MRS. F., *Edward Place*—Producer.
A fire-screen, worked in tapestry by the exhibitor.

12 WHITE, GEORGE, *St. Mark School, Jersey*—Proprietor.

Class box and illustration board, to exhibit writing, &c., to a class in a school, used as a seat and box for books.

Door governor: to prevent violent shutting.

Chimney-pots or ventilators; to prevent "down-draught," by hills or buildings, having the advantages of an open chimney-pot combined with a covered one. "Down-draught" caused by adjacent obstructions made to assist the upward draft by confluence with it.—Registered.

Illuminated clock: to show the hour after dark by light transmitted from a central chamber to the interior of the pointers, which, having transparent fronts, show luminous lines on the darkened dial; the figures are also lighted from the same chamber.

Pump and blower, for the conveyance of water or air. The general arrangement for giving motion is by centrifugal force.

13 BROHIER, HENRY, *New Street, Jersey*—Proprietor.

Specimens of Jersey knitting, by an old lady; viz.—knitted garment, commonly known as "Guernsey frock," of white worsted. Pair of drawers, also knitted, of coarse grey worsted, undyed.

14 DE FAYE, THOMAS, *Seale Street, Jersey*—Proprietor.

Twelve pairs of beautifully knit stockings. Knitting peculiar to the island; fine woollen thread, dyed of different colours.

[The female peasantry of Jersey are seldom if ever without the materials necessary for this occupation. On the way to or from market, and at other times, knitting forms their almost constant employment; and the articles produced have a peculiar character, which renders them readily recognisable.]

15 VIBERT, SUSANNA, *St. Mary, Jersey*—Manufacturer.

A pair of knit stockings, the work of the exhibitor, aged 71 years; the peculiar manufacture of Jersey.

16 MARIE, MARY, *King Street*—Manufacturer.

Richly knitted silk jacket, in blue and white stripes, having on the breast the Prince of Wales' feather, and under it the words "Albert Prince de Galles." Knitted entirely by the exhibitor, who is a shoebinder; it contains upwards of one million stitches.

17 SCARFE, GEORGE, *Beresford Street*—Proprietor.

Chaise harness, elegantly fitted with silver ornaments, and elaborately finished and embossed.

18 CARMALT, JOHN, *David Place*—Manufacturer.

A pair of scissors and a knife, so diminutive in size that the two do not weigh a grain.

19 JOUHAUD, PETER, *Peter Street*—Inventor and Manufacturer.

Carriage-gun: takes readily to pieces, and can be used as a rifle, a fowling-piece, or a pistol; cannot be discharged by accident, having a secret spring; is embossed and inlaid with gold and silver. The lock is of a peculiar construction; the stock is finely carved.

20 LE FEUVRE, GEORGE CLEMENT, *Edward Place*—Manufacturer.

Chiffonnière, composed of oak, a portion the produce of the island of Jersey; the inside fittings of satin-wood; the panels tapestry. There are three compartments, cabinet, secretary, and boudoir, the latter containing a nest of drawers. The ebony and satin-wood fittings are beautifully finished. The panels represent the emblems of England, Scotland, and Ireland in tapestry, the work of the exhibitor's wife, divided by carved columns, with figures surmounted by wrought frieze. The back represents, in carved work, King John signing the Magna Charta. The accompanying Plate 94 represents this sideboard.

21 STEAD, WILLIAM, *Hill Street*—Manufacturer.

A piece of furniture, applicable as a celleret or font; the bowl, cut out of solid mahogany, is finely carved, and supported on three claw-feet; the top is movable by ropes and pulleys, running in circular boxes forming the pillars or supports for the crown by which it is surmounted, and resting on the edge of the bowl on three worked lions' heads.

22 COLLIE WILLIAM, *Belmont House, St. Helier, Jersey*—Producer.

Calotype pictures from life—"French and Jersey Market-women."

[Preceding notes, in Classes of the United Kingdom, have explained the use of this term calotype—originally a
3 L 2

derivative from the Greek. It is now generally superseded by that of Talbotype, implying the name of the inventor of the art of photography on paper. The peculiar brilliancy of the atmosphere of these islands, combined with the abundance of blue light reflected from the sea, was found by the writer to communicate an almost instantaneous impression to paper or plates.—R. E.]

- 23 SAUNDERS, GEORGE, *Bath Street, Jersey*—Producer.
A model in paper, representing Her Majesty landing at Victoria Pier, Jersey, 3rd September, 1846.

[The Victoria Pier at Jersey is only just approaching its completion, and has absorbed a large amount of time and money. It is protected by Elizabeth Castle on the northern side, and covered by the guns of the fortress which commands the town.—R. E.]

- 24 SIMON, MISS, *Elizabeth Place*—Proprietor.

Basket-work, in paper; an heirloom from her progenitor, Madame Mauger, in 1728.

- 25 CLUGAS, THOMAS, jun., 8 *L'Hyreux Terrace, Guernsey*—Proprietor.

Specimens of granite, porphyry, and pot-stone, from the islands of Guernsey, Herm, and Sark:—

1. Porphyritic gneiss, from Pleinmont Cliffs.
2. Red porphyritic gneiss, from the same.
3. Black hornblende, from les Teilles.
4. Hornblende schist, from Castel au Roc.
5. Red Syenite, from Roc de Guet.
6. Grey Syenite, from Mont Cuet.
7. Blue Syenite, from the Vale quarries.
8. Grey Syenite, from the island of Herm.
9. Porphyry (black), from the island of Sark.
10. Steatite, from the same island.

Carved specimens.

The above are used for building and macadamizing. Herm syenite was used for the steps of the Duke of York's Column, in Waterloo-place.

[The rocks of Guernsey are principally gneiss, granite, and syenite. Quarries of syenite exist at Grande Roque; but this syenite is not considered equal to that of Mount St. Mado, in Jersey. At St. Sampson's are some extensive quarries of granite, which are worked for paving-stones; and of these considerable quantities are sent to London and Portsmouth. Experiments made as to the comparative durability of this granite and other granites, give a result highly favourable to its employment. It has been successfully laid down in the heaviest thoroughfare in the metropolis. Quarries formerly existed at the island of Herm, but are now abandoned. In the same island, and in Sark, are several mines, which formerly yielded copper and silver in considerable quantities; but these are now no longer worked.—R. E.]

- 26 MARTIN, PETER, *St. Peter's Port, Guernsey*—Producer.

Raw silk, the produce of the Island of Guernsey, being the first sample obtained by the Guernsey Silk Growers' Company, lately established in the island.

Arrowroot fecula, obtained from the *Arum maculatum*, a plant indigenous to Guernsey.

[Experiments have been repeatedly made in England to introduce the culture of the silkworm. The late Mrs. Whitby was very successful in this art, and laboured much to establish it in this country: her experiments show that the mulberry of the Philippine variety, *Morus multicaulis*, is best adapted for their food. The culture of this insect, and the introduction of this tree into the Channel Islands, would very probably be attended with a large success if carefully carried out. The almost total

absence of frost in winter is sufficient to indicate the great mildness of the climate.—R. E.]

- 27 ALLBOND, EMANUEL, *St. Peter's Port, Guernsey*—Inventor.

Model of a machine to determine the distance run by a ship, and at the same time to determine the ship's place on the chart.

- 28 HARRIS, PETER GEORGE—Inventor.

A corking machine: improved application of the lever in driving the cork through a cone, the bottle being secured by another lever at the foot.

- 29 MACDONALD, SOPHIA, *Woodland*—Inventor, Designer, and Manufacturer.

Tulle dress, embroidered with groups of floss silk flowers, copied from natural flowers. The novelty consists in the firmness given to the floss silk flowers on so slight a texture as tulle.

- 30 DOBREE, HARRIET, *De Beauvoir*—Designer and Inventor.

Table-top, ornamented with shells found in the Island of Herm.

Group of poultry made of shells.

[On the western and northern shores of the island of Herm there exist interesting shell-beaches, which afford a rich study to the conchologist. It is remarkable that on this small island, of the entire group, is this collection of shells chiefly found. They are principally of a minute, and often almost microscopic size; but their numbers are inconceivable.—R. E.]

- 31 HUTCHINSON, ELIZABETH, *Queen's Road*—Designer, Inventor, and Manufacturer.

Vases, with shell flowers.

Octagon table slabs in rosewood cases, with groups and wreaths of shell flowers.

- 32 SARCHET, JOHN, *Victoria Road*—Inventor.

Model of a machine for welding chain cable and other links, the first invented; saving labour, and of importance for ship cables.

- 33 ARNOLD, ADOLPHUS, 11 *Commercial Arcade, Guernsey*—Manufacturer.

Specimens illustrating the manufacture of iodine and iodide of potassium.

Specimens of the fuci and algæ which grow abundantly on the north and west coasts of the island of Guernsey.

Fused mass, consisting of the ashes of these marine plants, and containing salts of soda, potash, lime, and magnesia. The quantity of iodine in this material bearing a direct ratio to the quantity of potash contained therein, it is presumed to exist as iodide of potassium.

Iodine in the rough state, as produced in the first receiver connected with the distillatory apparatus, and containing bromine and chlorine in small proportions.

Commercial iodine, prepared by steam distillation, pure, dry, of brilliant metallic appearance, and free from bromine. Used in medicine and the arts for dyeing.

Crystals of iodide of potassium, prepared from the preceding.

Residuary product, consisting of the ashes of the fuci and algæ, after the iodine has been extracted, and containing the salts of potash, soda, lime, and magnesia, as chlorides and sulphates. Used as a manure by the farmers.

[The collection of the fuci and algæ which abound in the northern, western, and south-western shores of Guernsey, is considered of great importance by the island agriculturist. The "vraic" is gathered at spring tides, and the event is one of peculiar interest, in consequence of the

crowds of people employed in cutting, carting, and removing the marine plants. *Vraic* is distinguished into the cut and the floating sorts; the former is most highly valued, and the gathering of them is protected by law. Between 25,000 and 30,000 cart-loads are collected on the shores yearly. The precipitous southern coast does not present a favourable site for the growth or collection of these plants. In summer-time the fields are often covered with beds of sea-weed spread out to dry: it is afterwards used as a fuel in winter, and the ashes, carefully collected, are sold for manure, and are considered so essential to the soil, that it is a proverbial expression, "if there be no *vraic*, there will be no corn." The fused mass of ashes contains various salts, and appears particularly rich in iodine.—R. E.]

34 GOULD, THOMAS—Manufacturer.

Salts, similar to those commonly called "Epsom," produced from salt or chloride of sodium.

[Epsom salts consist chemically of a sulphate of magnesia. The preparation exhibited appears to be sulphate of soda in a crystalline form, since it is obtained by the decomposition of chloride of sodium.—R. E.]

35 DOBREE, D., *Forest Rectory, Guernsey*.—Proprietor.

Original Guernsey frock, of Guernsey home knitting, in constant use among labourers and fishermen; worn over the shirt.

Frock of Guernsey wool and Guernsey home knitting, used instead of flannel.

Drawers, men's and women's stockings, nightcaps, gloves, fishermen and labourers' cravats, and slippers of Guernsey home knitting.

36 LE BEIR, N., *St. Peter's Port, Guernsey*.—Proprietor.

Guernsey farm saddle: local name of material "han," in constant use on every farm for riding, and for carrying bags and panniers. Mat and footstool of "han," in common use. Bullock's and horse's collar of "han." Coil of "han" rope, used by fishermen: this does not harden in the salt water. Shackles of "han," used for cattle; these do not cut the feet. "Han,"—a hank of the raw material, common in Guernsey; it grows in the meadows.

["Han," or, in botanical language, *Cyperus longus*, is employed by the peasantry of Guernsey for a variety of purposes, for which hemp is elsewhere used. The fibre has a certain degree of tenacity, and is twisted and formed into ropes, mats, &c. Cattle are constantly tethered by a rope of this material.—R. E.]

37 DOREY, D., *St. Mary de Castro, Guernsey*.—Proprietor.

Guernsey osier crab-pot; to be sunk in deep water, baited inside, to catch lobsters, conger, &c. Osier fish-basket. Large osier bait-pot, intended for a few days' consumption, left at sea to keep the bait alive. Small bait-pot, for one day's use, towed after the boat.

[The fishery around both Guernsey and Jersey is excellent, and the markets are well supplied. The conger eel is caught of a very large size, and is much employed in the domestic cookery of the islands. At Jersey an important oyster-fishery exists, from which large quantities of oysters are sent to Southampton and to other places.—R. E.]

38 Guernsey home-knitting work by cottagers.

39 GOODRIDGE, J., jun. (of the "Channel Islands Express" steamer)—Inventor.
Model of a life-boat.

40 VALPY, Mrs., *King Street, St. Helier, Jersey*.—Producer.

Specimens of conchology of Jersey, collected, classified prepared, and arranged by the exhibitor during a twenty-two years' residence in Jersey.

[One of the most interesting members of this conchological series is the *Aumer*, or *Oreille de mer*, a shell-fish which is collected abundantly at certain seasons. It is used in a variety of ways for food, and the shell is preserved, and exported to England; it is valued for its pearly iridescence, and is largely used at Birmingham by the makers of inlaid papier maché.—R. E.]

Leather frame. Large knitted quilt.

41 BERTHAMS, Mrs., *St. Helier, Jersey*.—Manufacturer.
Pair of socks, knit without glasses by the exhibitor, aged ninety-three.

42 MARQUARD, P., Blacksmith, *North Pier*.—Inventor and Producer.

Model of a patent truss for the yards of ships, of Muntz metal.

43 POPE, Mrs., *Halket Place, St. Helier, Jersey*.—Manufacturer.

Various descriptions of confectionery in sugar, manufactured by exhibitor.

44 ELLIS, Miss—Proprietor.

Specimens of fine workmanship in leather, shown in a pier-glass frame and stand, with brackets.

45 DRAKE, FRANCIS—Inventor.
Model of collapsing life-boat.

46 RANDELL, Miss, *Guernsey*.—Producer.
Two mats worked in wool.

47 LETAUREL, J. H.—Producer.
Acts of the Martyrs, in French.

48 MANUEL, H. L., *Jersey*.—Producer.
Two pairs of Newfoundland fishing boots.

49 STAFFORD, MRS. B. A., *Guernsey*.—Producer.
Stand of wax fruit.

MEDITERRANEAN.

MALTA.

NORTH AREAS, I. J. 32.

(Commissioner, C. J. GINGELL, Esq., of Valetta, and 66 Cornhill, London.)

FROM Malta has been forwarded, by about thirty-four exhibitors, a collection of interesting objects representative of its local manufactures. The only specimens of raw material sent are some pieces of Maltese stone, oiled for pavement, and in their natural state, and some specimens of cotton and silk of native production. In addition to these are a few samples of seeds and wheat. The nankeen cotton cloth of Malta has been

sent by several exhibitors. Some elaborate specimens of embroidery are also among these articles. A very attractive collection is that of the jewellery and other articles in gold and silver filigree. The chaste and delicate appearance of these objects is extremely pleasing. A prominent part in the collection is formed by the stone vases, some of which exhibit skillful execution and tasteful design. The figures in wax will likewise attract notice. These articles are placed next to those of India, on the North side of the Western Nave.

1 TONNA, JOSEPH, *Strada Forni, Valletta*—
Manufacturer.

Double-bass fiddle, made of bird's-eye maple.

2 BONAVIA, CNORATO, *Casal Nazaro*—Producer.

Specimens of cotton sail-cloths of four, five, six, and seven threads of different lengths.

Specimens of chequered cotton cloth for carpeting.

3 SCHEMBRI, G., *Valletta*—Manufacturer.

Cotton tissues:—

Pieces of natural Malta nankeen, white, narrow, and wide squares. Piece of light colour, and damasked square.

4 PULIS, G. MONTEBELLO.

Cotton fabrics:— Piece of natural nankeen, plain. Piece of nankeen, striped with Malta raw silk. Piece of superfine plain nankeen.

Sample of common Maltese cotton. Common Maltese nankeen cotton. Indian nankeen cotton. Sea-island cotton. Mastodon American cotton.

Sample of cummin seed. Aniseed. Sesame seed.

Sample of Maltese hard wheat (called *Tommia*). Soft wheat.

Samples of cotton thread, from four kinds of cotton. Cotton thread, from common Maltese cotton. Maltese cotton.

Sample of Maltese silk and cocoons.

[After prolonged and patient labour the soil of Malta has been made to yield its fruits to the husbandman, and abundant crops are obtained. Among these cotton forms the most important. About four million pounds of this fibre are exported yearly.—R. E.]

5 VILLA, FRATELLI, *Strada Mercanti, Valletta*—
Manufacturer.

Cotton fabrics:—

White and red cotton blankets; figured counterpanes. An assortment of straw hats.

6 FENECH, VINCENZO, *Floriana*—Producer.

Specimen of Maltese bookbinding, two volumes.

Collection of ancient and modern costumes of Malta.

7 GRAVAGNA, MARIA, *Valletta*—Producer.

Several pieces of broad lace.

8 NAUDI, Signora ROSINA, *Valletta*—Producer.

Velvet bags embroidered; plain embroidered muslin dress; plain embroidered baby's dress.

Toilet cover (lace, Greek style); embroidered handkerchief; various specimens of lace.

Various pairs of mittens.

9 ENRIQUEZ, Signora MARIA, *Valletta*—Producer.

Variety of black silk mittens.

Habit shirts, plain embroidered.

10 SCHEMBRI, ANTONIA, *Valletta*—Producer.

Specimens of lace with gold thread.

Collars. Two lace collars.

11 GOZO, SALVO DEL—Producer.

Specimens of black silk lace.

12 CASHA, COSTANZA, *Valletta*—Producer.

Piece of lace of Greek pattern.

13 POLITO, CANONICO, *Vittoriosa*—Producer.

Specimen of lace (Greek pattern).

14 CAMILLERI, E., *Valletta*—Producer.

Specimen of broad lace, with pieces for sleeves for clerical dress. Various specimens of lace.

15 VELLA, PAOLO, & Co., *Valletta*—Producer.

Specimen of lace.

16 CAMILLERI, FORTUNATA, *Valletta*—Producer.

Specimen of lace.

17 GRECH, GIUSEPPINA, *Valletta*—Producer.

Baby's plain embroidered muslin dress.

18 LAGRESTIZ, Signora ELENA NUZZO, *Valletta*—
Producer.

Sample of embroidery with silks: top of a pincushion.

19 FENECH, ANTONIA—Producer.

Paper envelopes, embroidered with silks and gold.

20 AZZOPARDI, JOSEPH MOORE—Producer.

Pair of mittens, with beads.

21 DIMECH, Mrs.—Producer.

Various specimens of long and short mittens. Long mittens with beads.

Sample of lace. A breadth of black tulle, embroidered. Black lace. Flounce and breadth of broad lace. Numerous specimens of lace. Collar and two cuffs.

Maltese nankeen dress, embroidered with wool. Maltese nankeen girl's dress, embroidered with silk. Two pieces of Maltese nankeen.

22 THE CONSERVATORIO OF SAN GIUSEPPE—Producer.

Knitted collars; knitted fronts of habit shirts.

Specimens of knitted broad and narrow lace; knitted caps; knitted thread stockings.

23 PORTELLI, ANTONIO, *Strada Strella, Valletta*—
Producer.

Silver filigree reticule.

24 CRITEIN, E., *Strada Forni, Valletta*—
Manufacturer.

Specimens of gold filigree work:—Bracelets; rose-chain bracelets. Knot brooches. Double pin for hair. Rose-chains. Flat and rose rings, &c.

Articles in silver filigree:—Basin. Oval plates, with flowers. Round plates. Card cases. Candlesticks. Teaspoons. Cups. Wreath for the head. Bead bracelets. Large double pin. Small double pins. An arrow for the hair. Bouquet-holder brooches. Stars to suspend. Knot, tie, and shawl brooches. Rose-chain, &c.

Gold articles:—Gold rose-chain for waistcoat. Broad flat rings.

[The peculiar art of the filigree-worker, originating in Italy, is carried on with success at Valletta, one of the principal towns in Malta. The delicacy of this description of work and the beauty of the articles produced have long rendered it valuable among the admirers of jewellery.]

25 FALSON, S., *Strada Reale, Valletta*—
Manufacturer.

Articles in gold:—Maltese rose-chain. Bracelets: with scales; cameo; coral; oriental cameo, &c. Brooches: with bunch of flowers, in the form of a knot; and with a rose and flowers. Chain: imitation of Venice work. Large-sized pins. Bracelet, lace pattern. Pair of hair-pins. Various pins: with coral; mosaic work; cameo, &c. Shirt-studs. Chain rings. Rose-chain rings. Small rose-chain necklace, &c.

Ornaments in silver:—Filigree flower-stands. Flower ornaments for the hair. Hair-pins. Plates, and small cups. Bead bracelets; rose bracelets; and bracelets of Gothic pattern; rose-chain bracelets. Breast-pins, and chatelaines. Arrows for the hair. Large and small flowers. Shawl-pins and pincushions. Pins for necklaces, &c. Money-bag, and card cases. Bead buttons, various sizes. Butterfly of gold and silver. Pins in the form of a cornucopia. Small pins.

26 DARMANIN, JOSEPH, & SONS, *Strada Levante, Valletta*—Manufacturer.

Inlaid marble table-top, with the Royal arms, 4 feet long, 3 feet broad.

Inlaid marble table-top, with fancy scroll, &c., in the centre, 3 feet square.

Inlaid marble table-top, with Etruscan vase in the centre, 2 feet 6 inches in diameter.

Inlaid marble table-top, with the emblem of Carthage in the centre, 2 feet 2 inches in diameter.

Pieces of Malta stone, oiled and prepared for pavement. Drip-stone of Malta stone. Specimens of Malta and Gozo stone, and stalactite.

Vase, with pedestal of red Gozo marble. Wax and cloth figures.

[Malta and Gozo consist of stratified deposits, chiefly or entirely of the middle part of the tertiary period. They include, in descending order—1. A coral limestone, containing cretaceous nodules, some of which are variegated with yellow and white, and used for ornamental work, under the name of Gozo marble. 2. A sandstone and blue clay, from 100 to 150 feet thick, containing iron, gypsum, and sulphur. 3. Five beds of freestone, about 100 feet thick in all, and chiefly calcareous, though with much sandy admixture: these are much used for building purposes, not only in Malta and Gozo, but in all parts of the Mediterranean, the lowest bed being the most available, on account of the facility with which it is worked. 4. A yellowish-white semi-crystalline limestone, of very considerable but unascertained thickness, exposed to the extent of 400 feet on the coast of Gozo, and much used for building purposes where hardness is required. Some of the valleys of Malta and Gozo are picturesque and fertile where the blue clay (2) allows the water to be retained, and thus originates springs.—D. T. A.]

27 DECESARE, P. PAOLO, *Strada San Giovanni, Valletta*—Carver.

Large vases, 5 feet 8 inches in height, and 2 feet 10 inches in breadth. One of these vases is represented in the adjoining column. (Fig. 1.)

Small jugs, 1 foot 6 inches in height, and 1 foot 2 inches

Fig. 1.



Decesare's Stone Vase.

in breadth. One of these jugs is shown in the engraving, Fig. 2, p. 946.

Very large jugs, with pedestals, 7 feet in height, and 1 foot 11 inches in diameter. The accompanying Plate, 56, represents one of these jugs. Another is represented in the engraving in the next page. (Fig. 3.)

28 DIMICH, FERDINAND, *Strada Teatro, Valletta*—
Carver.

Specimens of stone carvings:—

Candelabrum, 6 feet in height, and 2 feet 8 inches in breadth.

Large vase, 4 feet in height, and 3 feet 9 inches in breadth.

29 SOLER, JAMES (Foreman to Mr. G. MUIR),
Strada Reale, Valletta—Carver.

Specimens of stone carvings:—

Vase with handles: size 1 foot 8 inches high, and 2 feet 10 inches broad.

Jug with vine-leaves ornament: size 2 feet 3 inches in height, 1 foot 2 inches wide. Oval vase, 1 foot 4 inches in width. Small basket.

Fig. 1.

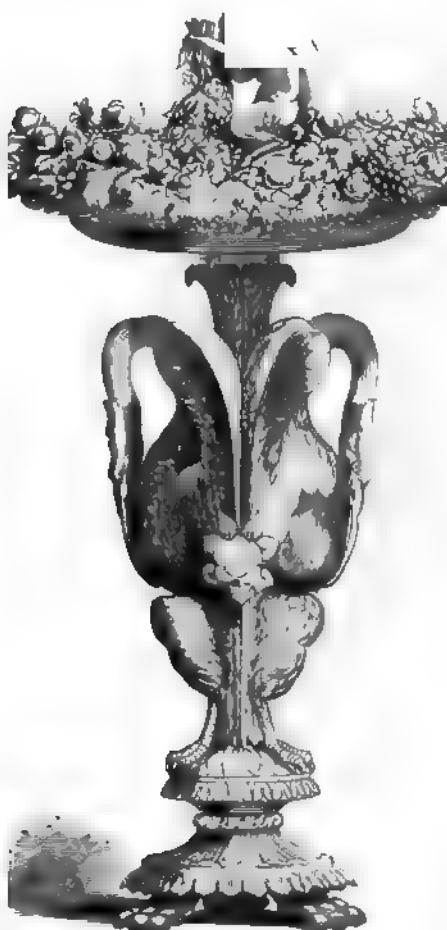


Fig. 2.



Testa's Stone Vases.

GIBRALTAR.

- 1 CHARRUY, PIERRE, *Gibraltar before the Exchange*—
Producer.
Razor strops, with handles of rock stones.

IONIAN ISLANDS.

NORTH AREA, I. J. 80.

OWING to some misapprehension, the Ionians were without knowledge of the objects and purports of the Exhibition of 1851, until very recently. Unwilling, however, that the name of the Ionian Islands should alone be wanting in the list of nations on this great occasion, the Executive Committee appealed to an Ionian gentleman, who has been induced to collect together, by the kind contribution of certain noble and eminent individuals, who have served Her Majesty in those islands, such articles in their possession as might serve as specimens, to a very trifling extent, of the products, skill, and industry of the Ionians. These products are principally articles belonging to the classes of textile and ornamental manufactures. The specimens of embroidery exhibited are extremely rich and beautiful, and form a characteristic contribution to this collection. The filigree work is also exceedingly delicate, and illustrates a department of skill in the working of precious metals which has no representative in our own country. The brooches and medallions exhibit some of the favourite devices of the Ionian artists.—R. E.]

- 1 WOODFORD, Lady, 21 Somerset Street, Portman Square, London—Producer.

A Greek dress, made in Corfu.

A pair of silver bracelets, made in Corfu; the one with the motto "ΖΗΤΩΝ ΑΔΟΛΑΝ ΦΙΛΙΑΝ." "My pressure is that of friendship without guile;" the other, "Ο ΦΕΡΩΝ ΑΓΑΠΗΝ." "He who feels affection" (offers it to you).

A silver brooch of elegant pierced work, formed by a garland of grapes and vine-leaves, surrounding the emblem of the Seven Islands.

A brooch in silver filigree-work, with the head of Corcyra on the one side, for Corfu; the winged horse of Belerophon on the reverse, for Zante.

A Greek cap, made at Lefchimo, a village of Corfu.

Memorial clasp in gold, made at Corfu, and of remarkable workmanship; the gold filigree being placed on a plate of polished gold, which reflects it as from a mirror.

- 2 MAVROIANNI, Madame—Producer.

A gold bracelet, made at Corfu, of filigree-work, surrounding the emblem of the islands.

Two silk handkerchiefs, of fine fabric, of Zante manufacture.

An apron of muslin, made in Corfu, with a border worked on linen with the needle; somewhat similar to Dresden-work, but of larger stitch, on a very elegant and classical pattern, of grapes, vine-leaves, and butterflies.

An apron of crochet-work, remarkable for the beauty of the pattern and execution, and showing that what has but recently appeared in England as an accomplishment, has been for ages the common needlework of the Ionian peasant-girls. The border is of deep Dresden-work of magnificent effect, with emblematical designs of lions, Cupids, flowers, &c.

[These aprons are the ordinary work and every-day wear of the peasant-girls of Corfu. The dress of the Greek peasant-women, in general, being of an extraordinary richness, so that a peasant-bride's dress is often her dowry, being not unfrequently worth 400 or 500 dollars.]

3 **MAVROIANNI, —, Producer.**

Samples of Cephalonian currants.

The island of Cephalonia, though not so rich in currants as Zante, nevertheless supplies a great part of the quantity consumed in Great Britain.

Olive-oil, the growth of Corfu.

4 **FITZROY, Lord CHARLES, 3 Grosvenor Square, London—Producer.**

Three Zante silk scarfs.

A Zante handkerchief.

5 **SEATON, Lord, for the INHABITANTS OF THE IONIAN ISLANDS—Producer.**

Specimen of Cephalonian stone.

Silver seal, on which is engraved a ship without a rudder, the arms of Corfu.

Silver bracelets of various forms, some of them combining the seven medallions of the seven islands; a favourite device of Ionian jewellery. Others, uniting in fanciful form, devices of frosted and polished silver.

Silver brooches.

Specimens of olive-wood: one of them an olive-wood cup, cut out by a Greek peasant with a penknife.

Specimens of samplers, worked by Greek girls, each containing a Scriptural sentence, contained within a border of flowers of exquisite colour and arrangement.

A book-weight, made of a peculiar stone found in Cephalonia.

Zante scarfs, made of silk grown and dyed in the island; the patterns of the old Venetian taste.

Large and small pieces of raw silk of a very superior quality, as collected and spun by young ladies in the islands.

Velvet bag, richly embroidered in gold, from Santa Maura [the ancient Leucadia].

Cambric handkerchief, of Cephalonian manufacture, embroidered with gold, from Santa Maura.

Bag and pocket-books embroidered in gold.

Gold bracelet, made after the pattern of an antique one found in a tomb.

Silver-gilt bracelet, of the same fashion.

Large brooch of silver, of fine workmanship and design, combining in the centre the lion and crown of England, as a large medallion, with seven medallions of the seven islands depending from it. The centre medallion represents the arms and emblem of the island of Corfu—"The flower of the Sea"—a female figure, supposed to be Corcyra, the daughter of Asopus, who was carried off by Neptune to the islands, seated upon a rock, holding in the hand of her extended right-arm an olive-branch. On the one side of her is a cornucopia, denoting the fertility of the island; and the other, an ancient galley, emblematic of the commercial spirit and wealth of its inhabitants. This ship, which is rudderless, sometimes stands alone as the arms of the island, and has been also supposed to take its origin in the ship of Ulysses, which was fabled to have been transformed into a rock, somewhat of the figure of an ancient vessel, which now stands at the entrance of the harbour. The letters *Kic* are the abbreviation of *Korcyra*, the ancient Corcyra.

The medallion, on the right, is marked by a tripod for Zante, and the letters *Zan*, the abbreviation of *Zante*.

The next to this, on the right, is the medallion of Santa Maura. The harp upon it symbolizes its fame, as the death-place of Sappho; the letters *Lis* being the abbreviation of its ancient name *Leucadia*. Another emblem of this island is Bellerophon, on a winged horse, attacking the Chimera, which it derives from its Corinthian colonisation.

The last on this side is Ithaca, marked with the head of its king Ulysses; the letters *Ith* being the abbreviation of *Ithaca*.

On the right of the Corfu medallion is that of Cephalonia, the next island in magnitude, represented by Cephalus, the son of Mercury and Creusa, who, when condemned by the court of Areopagus to perpetual exile for having unwittingly killed his wife Procris, came to dwell upon this island. He is represented as reclining after the chase, a dart in his hand, and his dog at his feet. The letters *Kic* are the abbreviation of *Kephalonia*, the ancient designation of the island.

Corigo comes next. The letters *Kot* denote *Kotige*, the ancient Cythera, represented on the medallion by Venus, to whom the island was sacred, and who was fabled here to have had her birthplace and her domicile. The goddess is standing on her shell, drying her hair with the one hand, and holding in the other the famous apple.

Paxo, the smallest of the islands, comes last. Its sacredness to Neptune is denoted by his trident. The letters *Pa* are the abbreviation of *Pafo*, Paxo. This island is also represented by the helm, or rudder, of a ship within an olive garland.

Silver egg-cup, in silver filigree work.

Silver brooch, comprising seven medallions, with the arms of the seven islands engraved thereon.

Silver thumb, encircled with seven small medallions, with the arms of the islands.

Bag for ladies, of velvet, embroidered in gold, with raised work in coloured silk.

Round case, or lady's housewife, of velvet, embroidered.

Card-cases, or pocket-books, for ladies, of velvet, embroidered.

Shirt, of Ionian manufacture of raw-silk, such as is worn by the peasantry in summer.

Shirt, of Ionian manufacture of raw silk, such as a few years since was worn by the gentry of the islands in summer.

Gold ring, made at Corfu, with the initials of the party wearing it, and the emblems of the seven islands, usual as a present from friend to friend.

Gold ring, made at Corfu, such as is usually interchanged between brothers, there being as many hoops as there are brothers in the family; and the ring, by a peculiar shifting of the catch, forming either one whole ring, or a chain of so many links.

6 **WARD, Sir HENRY—Producer.**

A silver inkstand, by Anastasio Florias, of Corfu, silver-smith.

A wooden lamp of olive-tree wood, common in the island of Corfu, and used in the Greek churches.

A knife, by Antonio Arhionoli, peasant, from Prinilla, in the district of Giri, Corfu.





III.

BRITISH POSSESSIONS IN AFRICA.

SOUTH AFRICA.—WESTERN AFRICA.
AFRICAN ISLANDS.

THE distinguishing feature of all the contributions to the Exhibition sent from the dependencies of Great Britain is the predominance of raw material and produce over manufactures and fine arts. There is much that is suggestive in this fact. The early development of the prosperity of a new country or colony is always necessarily more directly dependent on its natural products, and their application, than on the industrial arts. There is much to interest both the naturalist and the merchant in the objects exhibited.—R. E.

SOUTH AFRICA.

SOUTH AFRICA, L. M. 30.

Agent, Mr. H. WATSON, *St. Peter's Chambers, Cornhill.*

THE collection from the Cape of Good Hope, added to that forwarded by the Agricultural Society, consisting of a variety of articles from South Africa, is the contribution of about sixty exhibitors. With the exception of a few specimens of furniture, and native manufacture in wood, &c., this collection is valuable chiefly as illustrative of the raw materials furnished by the districts which it represents. The minerals sent from the Maitland mines, inclusive of lead and iron ores, and also of graphite and coral, are the chief representatives of the first class of the Exhibition, with the exception of a slab of coloured marble from Natal, mounted as a table on a stand of oak. Specimens of crude and of partially-purified cream of tartar, under the name Argol, are sent, in Class 2, together with some medicinal plants and drugs. Several kinds of bark for the use of the tanner, walnut-oil, and oil from the sheep's tail and sea-elephant; some impure carbonate of soda, prepared from incinerated plants, called gunna ashes; specimens of orchilla weed, guano, and honey are also interesting. Among the vegetable products the berry wax, obtained probably from a species of *Myrica*, deserves notice. The articles of food represented consist of maize, wheat, flour produced in the Cape Colony, preserved fruits and provisions, and dried fruits. The skins of the wild animals, exhibited in their unmanufactured state, and also in the form of the karosses worn by the Kafirs, the ivory and elephants' teeth, and a large pair of ox-horns, measuring from tip to tip upwards of 8 feet, sent from Port Natal, will be considered interesting. Specimens of the feathers of the ostrich are also sent in illustration of this important article of colonial export. A tippet made from the feathers of various Cape birds is also exhibited.—R. E.

- 1 MAITLAND MINES, *Port Elizabeth.*
Lead ore, from Port Elizabeth. Iron ore, from Uiten-

hage. Graphite, from Cape Town. Coral, from Caledon. Oyster shells, from Uitenhage.

- 2 DE VILLIERS, P. I., *Paarl, Cape Town.*
Argol, white and red.

[Argol is the name given commercially to the crude tartar (bitartrate of potash) which exists in the juice of the grape, and is deposited from wine in the fermenting casks, as alcohol becomes formed. The two colours are from the white and red wines respectively. The purified tartar obtained from this substance is used, either directly or indirectly, in dyeing, calico-printing, medicine, &c.—E. F.]

- 3 THALWITZER, M., *Cape Town.*
Medicinal plants and drugs; "klipsweet."
Bark for tanning, tamboukie wood, &c.

- 4 JEPPE, H., *Swellendam.*
Medicinal plants and drugs. Specimens of soda. Mustard seeds. Walnut oil.

- 5 BAYLEY, J. B., *Caledon.*
Samples of preserved fruits; gold of pleasure.

- 6 VOLSTEDT, J. P., *Caledon.*
Samples of maize.

- 7 PAARDEBEEK, J. S. C., *Malmesbury.*
Samples of honey.

- 8 TRUTOR, H. A. O., *Cape Town and Caledon.*
Samples of flour. Eggs of the ostrich.

[The ostrich belongs to the natural family of *Struthionidae*. Its eggs are considered great dainties by the Hottentots, and are cooked by being plunged into the live embers of a wood fire. In the shallow pits of sand where the eggs are deposited, a large number are occasionally found. The eggshells are extremely dense and hard, and are converted into various articles of use and ornament.—R. E.]

- 10 **BOTANIC GARDEN, Cape Town.**
Samples of cotton.

- 11 **MANUEL, C., Cape Town.**
Samples of Natal cotton.

- 13 **CLARENCE, RICHARD, Cape Town.**
Sea-elephant oil; sheep's-tail oil.

[Sea-elephant. This animal is the largest of the seal-tribe, and is distinguished by a tumid pendulous proboscis which, in the male, can be distended and erected, whence the name applied to the species by the sealers. The sea-elephant (*Phoca proboscidea*, or *Cystophora proboscidea*) is a native of islands in the Southern and Antarctic oceans. It attains a length of thirty feet.—R. O.]

- 14 **KUNHARDT & Co., Cape Town.**
Sheep's-tail oil.

[The variety of the domestic sheep at the Cape of Good Hope is characterised by a tendency to an enormous accumulation of fat in the tail, which would in some cases drag upon the ground, and become ulcerated, were it not for the precaution of fastening to it a board on wheels, by which it is dragged along.—R. O.]

- 15 **THOMSON, GEORGE, Cape Town.**
Sea-cow teeth.

- 16 **MEESER, F., Cape Town.**
Ox horns, polished, and rough.

- 17 **WATERMEYER, C., Green Point.**
Samples of hemp (aloe).

- 18 **BLACKBURN, J., Cape Town.**
Karosses. Specimens of wild cats' and jackals' paws.

- 19 **DEANE & JOHNSON, Cape Town.**
Specimens of karosses.

[Karosses are cloaks, such as are worn by the Kafirs, made of the skins of wild animals. The numbers of rare and beautiful quadrupeds inhabiting South Africa, render these skins objects of much interest to the naturalist, as well as articles of intrinsic value.—E. F.]

Ivory; elephants' tusks. Three Malay hats.

- 20 **HANBURY, E., Cape Town.**
Skins of wild animals.

- 21 **BRIDGES, C., Cape Town.**
Skins of wild animals. Kafir chair, battle-axe, hoe, &c. Buffalo and other horns. Rhinoceros-hide sticks and whips. Stone box, &c.

- 22 **CLUAPPINI, A. & Co., Cape Town.**
Skins of wild animals. Twelve goat skins, weighing 65 lbs. each.

- 23 **RUTHERFOORD, H. E., Cape Town.**
Samples of wheat. Ostrich feathers.

[The export of ostrich feathers from the Cape is of great importance to the colony, and the prosperity of this trade necessarily affects the tribes of native hunters. Consequently, those circumstances which interfere with the demand for feathers at home, affect ultimately the Kafir hunters themselves. The recent disturbances produced a great impression upon the trade in ostrich feathers, and the results are severely felt by the native hunters of these birds.—R. E.]

- 26 **WOODMAN, J. C., Cape Town.**
Manufactured olive wood.
[The olive wood of the Cape is the product of true olive-

tree, species of *Olea*, but all distinct from the *Olea* of Europe.—E. F.]

A cabinet, composed of seven species of wood, especially of stinkwood, so called on account of the offensive smell of the wood when newly cut.

[The peculiar wood here alluded to is that of a tree belonging to the order *Lauracea*. Its botanical name is *Oreodaphne fatens*. Its odour is universally described as most intolerable. The same tree exists in the Canary Islands, where it is known under the name of TIL.—R. E.]

- 27 **THALWITZER, M., Cape Town.**

Curiosities; bows and arrows; Bushman's blanket. Bark for tanning.

- 28 **HANBURY, E. J., Cape Town.**
Rhinoceros-horn sticks and whips.

[There are several species of rhinoceros in Africa; one of them ranges throughout the central regions; two are peculiar to the south. Three African species have two horns, the other has only one horn. They are all quite distinct from the Asiatic species. The horn is formed out of an accumulation of metamorphosed hairs.—E. F.]

Leopard-skin.

- 29 **MOAG, W., Cape Town.**
Kafir warrior's head-dress.

- 30 **FOORD, R., Cape Town.**
Model in clay.

- 30A **SUTHERLAND, J., 17 Great St. Helen's, London.**
(Agent to Twist Niet Steam Mills, of Messrs. J. F. FREDERICKSEN and T. SUTHERLAND, jun.)
Wheat flour, the produce of the Cape Colony.

- 30B **BAZLEY, T., Natal.**
Three bales of cotton, from Port Natal.

SOUTH AFRICAN PRODUCTIONS, forwarded by the AGRICULTURAL SOCIETY OF THE CAPE OF GOOD HOPE.

- 31 **REITZ, RIEDA, & Co.**—Samples of fine wool.

- 32 **BREDA, D. J. VAN, Hatch River.**—Samples of fine wool.

- 34 **PRINCE, COLLISON, & Co.**—A barrel of fine flour.

- 35 **VOLSTEEDT, J. P.**—Preserved fruits, viz., bitter oranges, green apricots, green figs, naartjes, citron, candied figs, candied naartjes, and oranges.

- 36 **MOSS, N.**—Cigars and kannaester tobacco.

- 37 **SEARIGHT, J.**—Two tins Malagas guano.

- 38 **SMITHERS, J.**—Tallow and soap.

- 39 **SCHLUSSLER, H.**—Cask of salt beef.

- 40 **MARTIN, W.**—Cask of salt pork.

- 41 **MOSSO, T.**—A roll of sole leather.

- 42 **SCHMIETTERLOEW, C.**—A tippet made from the feathers of various Cape birds. Samples of sole leather. Sea-elephant oil.

- 43 **MISSIONARY STATION, GROENKLOOF.**—Quince walking-sticks, stained; riding whip, stained; and olive wood work-box.

- 44 **MORAVIAN MISSIONARY STATION at GENADENDAL.**—Double chopping knife, bread-cutting and hunting knives, vine cutter, pocket knives, and boschlemmer knife. Box composed of 30 specimens of various woods, in the rough and polished state; olive wood box.

- 45 **LINDENBERG, J., Worcester District.**—Specimen of berry wax; specimens of beeswax.

[The tree which yields the "berry wax" is, in all probability, *Myrica cerifera*, the berries of which yield it abundantly. Possibly it may be obtained from other species of *Myrica*. The trees from which it is obtained are found abundantly at the Cape of Good Hope.—R. E.]

46 BARN, T. A.—Sack of wheat.

47 DUMBLETON, H., *George District*.—Box, containing forty-three specimens of Cape woods, in the bark, rough and polished. Specimens of Colonial wool in the rough state.

[The wool of the native breed of Cape sheep is of little value, and forms but an unimportant article of commercial enterprise. That of the sheep of the Merino breed is, however, highly esteemed, and is annually exported to the value of about 25,000*l*.—R. E.]

SAMPLES of various WOODS indigenous to SOUTH AFRICA.

No.	Vernacular Names.	Uses.	Quality.	Locality.	Height of Stem.	Diameter.	Botanical Names.
					Feet.		
1	Tambookle wood .	Sawdust used as an emetic by the Zoolas.	Very hard and tough.	Port Natal . . . . .	..	..	. .
2	Pear (white) . . .	In waggon-work, for felloes, &c.	Hard and tough	Olifantshoek, Zizikamma .	15 to 20	2 to 3 ft.	<i>Imbricaria obovata</i> .
3	Iron wood (white) .	For axles, poles, &c., of waggons.	Very hard and tough.	Krakkakamma, Zizikamma, &c.	20 „ 30	2 „ 3 „	<i>Asaphes</i> (<i>Boscia</i>) <i>undulata</i> .
4	Wild granate . . .	For cabinet-makers' tools .	Fine-grained and tough.	Eastern forests	5 „ 10	2 „ 5 in.	<i>Burchellia capensis</i> .
5	Beech wood	For waggon pole-tangs and felloes.	Soft and tough	Forests throughout the Cape Colony.	15 „ 20	2 „ 4 ft.	<i>Mangilia</i> (<i>Myrsine</i>) <i>melanophloea</i> .
6	Wild sage	By cabinet-makers for chairs, &c.	Hard and heavy	Ravines throughout the Cape Colony.	6 „ 10	3 „ 5 in.	<i>Tarchonanthus camphoratus</i> .
7	Alder (red)	Waggon felloes and planks	Hard and tough	Ravines along the water-courses.	15 „ 20	2 „ 3 ft.	<i>Cunonia capensis</i> .
8	Candlewood or cherry	Waggon-building and other purposes.	Very hard and heavy.	Edging the watercourses in ravines.	10 „ 15	1 „ „	<i>Celastrus rostratus</i> .
9	Assagaiwood . . .	Preferred especially for waggon-building.	Hard and very tough.	Moist and stony places .	20 „ 30	2 „ 3 „	<i>Curtisia faginea</i> .
10	Black olive	Furniture and waggon-work	Very hard and tough.	Rocky places	6 „ 10	1½ ft.	<i>Olea verrucosa</i> .
11	Wild elder	Table-feet and chairs . .	Hard and tough	Woods edging rivers . .	8 „ 0	7 in.	<i>Chilianthus arbo-reus</i> .
12	White olive	Waggon-work, poles, &c.	Hard and tough	. . . . .	15 „ 20	2 to 3 ft.	. .
13	Cedar	Coopers'-work, water-wheels, not being affected by water	Light, short, and resinous.	High rocky places in the Cedar Mountains.	10 „ 25	1 „ 4 „	<i>Callitris Ecklonii</i> .
14	Onderbosch	Waggon-tents, thatching-spars.	Very tough and durable.	Underneath high trees in the forests.	5 „ 10	1 „ 3 in.	<i>Trichocladus crinitus</i> .
15	Safranwood	Waggon-work, the bark for tanning.	Hard and close	Woods in the eastern part of the colony.	10 „ 15	1 „ 2 ft.	<i>Crocoxydon excelsum</i> .
16	. . . . .	Waggon-work	Hard . . . . .	. . . . .	..	..	<i>Mystroxydon</i> .
17	. . . . .	Furniture-legs, &c., and tools	Hard and tough	Shady spots in ravines .	5 „ 12	6 to 8 in.	<i>Royena lucida</i> .
18	Silkbark	Carriage-poles, spars. The bark, when broken, appears silky.	Tough and close	Woods in ravines . . .	7 „ 12	7 „ 9 „	<i>Celastrus</i> .
19	. . . . .	Waggon-work, and the bark for tanning.	Very tough .	Forests	5 „ 10	1 „ 8 „	<i>Rhus tomentosa</i> .
20	Red wood	Furniture, tools, &c. . .	Short and hard	Forests in the eastern districts.	12 „ 15	1 „ 2 ft.	<i>Diporidium arbo-reum</i> .
21	Gomasie wood . . .	Veneering and tools . .	Hard and close	Forests of Nysna River and eastern districts.	12 „ 15	1 „ 9 in.	<i>Gonoloma Kamassi</i> .
22	. . . . .	Waggon-work and tools .	Hard and tough	Ravines, shady and moist places.	7 „ 12	3 „ 10 „	<i>Celastrus?</i>
23	Pear (hard)	Waggon-poles, axles, &c. .	Hard and tough	Stony and moist places within the colony.	15 „ 20	2 „ 3 ft.	<i>Olinia cymosa</i> .
24	Ningroe . . . . .	. . . . .	Hard and heavy	. . . . .	..	..	. .
25	Yellow wood . . .	Beams, planks, and building.	Soft and light .	Forests of George District.	15 „ 20	2 to 4 „	<i>Podocarpus elongatus</i> .
26	. . . . .	Spars, rafters, &c. . . .	Soft and light .	Moist places by rivulets, Eastern Province.	10 „ 15	1 „ 7 in.	<i>Virgilia capensis</i> .
27	Quarribush	Felloes, the berries as food .	Short and hard	Woods of Eastern Province	6 „ 8	6 „ 10 „	<i>Euclea undulata</i> .
28	Blackbark	Waggon-poles, tools, &c. .	Hard and very tough.	Moist and shady places .	10 „ 12	1 ft.	<i>Royena villosa</i> .
29	Iron wood (black) .	Waggon-work	Very hard and tough.	Forests of Eastern Province	13 „ 20	2 to 3 ft.	<i>Olea undulata</i> .
30	Alder klip	Waggon work	Hard and close	. . . . .	10 „ 15	1 „ 2 „	<i>Plectronia</i> .
31	Stinkwood	Furniture, gun-stocks, waggon-work	Hard and tough	Many forests	20 „ 30	3 „ 5 „	<i>Oreodaphne bullata</i>
32	Ash	Furniture, planks	Soft and tough	Forests of Eastern District	10 „ 20	1 „ 3 „	<i>Ekebergia capensis</i> .
33	Milkwood	Felloes, boat-ribs, and waggon-work.	Hard, milky, and tough.	Stony places	5 „ 10	1 „ 3 „	<i>Sideroxydon inermis</i>
34	Horsepis	Felloes	Hard and tough	Forests of Eastern Province	5 „ 10	1 „ „	<i>Hippobromus alatus</i> .
35	Guntsam . . . . .	. . . . .	Tough . . . . .	. . . . .	..	..	. .
36	Crosthorn	Waggon-spars, poles, &c. .	Hard and tough	Woods in ravines . . .	5 „ 8	3 to 9 in.	<i>Plectronia ventosa</i> .
37	Wild chestnut . . .	Beams, planks, &c. . . .	Soft and light .	Forests in ravines in Eastern Province.	15 „ 30	3 „ 4 ft.	<i>Calodendron capense</i> .
38	Alder (white) . . .	Furniture, planks, &c. . .	Tough and soft	Moist places in ravines in Eastern Province.	10 „ 12	2 „ 3 „	<i>Weinmannia trifoliata</i> .
39	Noentigara . . . .	. . . . .	Hard and close	. . . . .	..	..	<i>Euclea</i> .
40	Black wood	Tools, furniture, &c. . . .	Tough and hard	. . . . .	..	..	<i>Royena</i> .
41	Yellow wood	Deals, beams, planks, &c. .	Light and short-grained.	Forests in Eastern Province	20 „ 50	2 to 5 ft.	<i>Podocarpus latifolius</i> .
42	Kooboo	Waggon-work, felloes, &c. .	Light and short-grained.	Woods in Eastern Province	5 „ 8	1 „ 2 „	<i>Mystroxydon Kuba</i> .
43	White wood	Rafters, spars, &c. . . .	Light and soft .	. . . . .	10 „ 12	1 „ 8 in.	<i>Virgilia</i> .

48 SCHEUBLE, J. H., & Co.—Specimens of medicinal herbs and drugs.

49 SEPPER, H.—Impure carbonate of soda, prepared from gunna ashes.

50 PASS, A. DE—Samples of guano.

51 WATERMEYER, C.—Orchilla weed.

52 JOUBERT, J. G.—Honey.

53 BUCHANAN & LAW—An elephant's tusk, weighing 103 lbs., another weighing 97 lbs.

54 CLARENCE, R.—Dried fruits, viz.:—Almonds, peaches, raisins, apricots, pears, currants, and walnuts.

Samples of sea-elephant oil.

55 CALF, J.—Specimens of plumbago, Fuller's-earth, &c. Box of oyster shells, of geological interest, from position of deposit being at the top of Grass Ridge.

56 GREIG, G., & Co.—Specimens of iron ore.

57 A library chair, presented to C. B. Adderley, Esq., M.P., by the inhabitants of the Eastern province of the colony of the Cape of Good Hope.

[The chair was designed by T. Baines, and carved by J. Hart, of Graham's town. The back consists of two panels, carved, in wood of a lighter shade than the framework; each panel being enclosed in scroll-work. Between the upper and lower division, and in the centre of the back of the chair, is a cluster of native weapons and implements; the assagai and the shield of the Kafir, the bow and quiver of the wandering Boesman, the war-axe and plume of the Bechuana. On one side are placed the arms of the British settler, his rifle, hunting-knife, and pouch; on the other side, the long elephant gun, the powder-horn and belt of the Dutch Boer. The upper panel represents a forest scene. The principal group in the immediate foreground consists of an elephant, rhinoceros, and buffalo; on the left, a gnu is represented galloping; in the distance, are groups of giraffes and ostriches; and above, the carrion vulture appears to soar. The lower panel represents a South African scene. A wagon is about to descend the bank of a rivulet. On a ridge, overlooking the drift, down which the leading oxen are descending, is a Kafir hut. In the mid-distance is placed a frontier homestead, with verandah and porch; and rising immediately behind it, a lofty and rugged krantz: mountains fill up the back-ground. The cushion is worked in silk, on black velvet: it consists of a group of wild flowers, surrounded by a wreath of vine-leaves and grapes. The lower part of the chair, below the cushion, is surrounded by a frieze: the front is carved with a wheat-sheaf, and a festoon of cobs of Indian corn. The aloe, a characteristic of South African scenery, is grouped on one side, with a stem of Kafir millet; and on the other, with Indian corn.]

58 WATSON, H., *St. Peter's Chambers, Cornhill.*

Pair of polished ox horns, (with head complete), measuring from tip to tip 8 feet 4 inches, and 21 inches in circumference—from Port Natal; and stone slab, from Natal, mounted as a table.

58A CROUCH.

A model of machinery of H. M. S. "Dee."

59 WELLS, JOHN & Co., *Regent Street.*

A slab of coloured marble, from the district of Natal, mounted on a stand of oak grown on the estate of Lord Willoughby D'Eresby; carved by the exhibitors.

60 BUSH, C. J., 12 *Pancras Lane, London.*

Specimen of red ebony, from Natal, with fourteen engine-turned draughtsmen, made from part of the same. The wood has not been dyed, but merely oiled and polished.

Elephant's tusks, found near Graham's Town. The heaviest weighs 331 lbs., the lightest 134 lbs. The longest is 8 feet 6 inches in length and 22½ inches in circumference at the base, and its weight is 167 lbs.

WESTERN AFRICA.

SOUTH AFRICA, L. M. 32.

THIS collection of articles is a very complete representation of native products and of the results of native industry. It is contributed, however, exclusively by British exhibitors interested in this colony. The raw materials are very interesting. They include specimens of woods, among which is the celebrated African teak, so extensively used for purposes of ship-building, construction, &c. Specimens of cotton, ginned and otherwise, some of which grow spontaneously on the banks of the Niger. Raw silk and other textile materials are likewise illustrated. Among the articles of food are specimens of arrow-root, coffee, shea butter, dried fruit, &c. The most interesting and extensive part of the collection consists in the textile productions of native industry, which are extremely varied, and exhibit much simple ingenuity and ornament. The baskets, weapons, and miscellaneous personal and domestic fittings shown, have also much interest attached to them individually and to the circumstances of their production.—R. E.

1 WESTON, WARWICK, 73 *Gracechurch Street, London*—Importer.

1 Teak timber or African oak, for ship building, &c.

2 Ironstone. 3 Cotton with the seed.

4 Cotton, cleaned, without the seed. 5 Palm oil.

6—7 Bennie seed and ground nuts, from which oil is extracted.

8 Arrow-root. 9 The root of arrow-root.

10 Shea butter. 11 Ginger. 12 Coffee.

13 Pod pepper. 14 Cayenne pepper.

15 Gum copal.

16 African mats and small baskets, made there from dried grass.

17 African country cloths, made there from their own cotton.

These productions are all from the Western Coast of Africa.

2 FORSTER & SMITH.

Tobes, or cotton robes, from Sierra Leone.

Pagnes, or cotton cloths, from Gambia.

Knife from Gambia.

Grass-cloth from Sierra Leone.

Table-mats from Gambia.

Leather pouch containing MS. extracts from the Koran.

Leather pouches, worn as charms in Gambia.

Ashantee glass armlets, the glass obtained by melting European beads.

3 BROWN, JOSEPH PETO, *Cape Coast Castle, Gold Coast, West Africa.*

A large silk-cotton horse-cloth, manufactured at Dahomey, Africa; worn by the king's favourite son.

4 ROTHERY, Miss, 10 *Stratford Place, London.*

Two large wrought-cotton counterpanes, manufactured in the Cape de Verd Islands.

Three silk pangs, or mantles, manufactured in the island of San Nicolas, Cape de Verd Islands; worn by the ladies of the island.

5 TROTTER, Captain HENRY DUNDAS, R.N.

Various articles of African growth and manufacture, purchased and chiefly manufactured at Egga, on the right

bank of the Niger; and brought to England by the Exhibitor.

1 Specimen of *Samia Aduga* raw silk. This silk can be obtained at Brini Caunatown, in the Hausa country.

2 Specimen of *Samia Aduga*, as it is manufactured at Kattam Karafi. This yellow dye is a species of arrow-root, which grows wild in some places on the banks of the Niger, and also on the coast.

3 A specimen of raw cotton, which grows spontaneously on the banks of the Niger, and is often cultivated by the natives.

4 Specimen of lime, a material made of bones burnt into ashes, mixed with water, and dried in the sun. It is used by those who spin thread for the purpose of keeping their fingers dry.

5 Poisoned arrows, such as are used by the Felataha or Fulas, as well as by the people of Yoruba.

6 Specimen of cotton thread, including white and blue.

7 Ropes made of native hemp.

8 Female country cloth, such as is made into dresses and worn by the higher classes: it is manufactured at Yabotchy. The woollen yarn that is intermixed with the cotton is of European manufacture.

9 A goat or sheep skin.

10 Specimens of female dresses, made of country cloth: these are worn by the higher classes. They are manufactured at Illoryn, Yoruba country, and at Moko, in the Hausa country.

11 Specimens of a female fashionable dress, made of country cloth, and worn by the higher classes. The cloth is manufactured at Nikij or Babuh, in the Yoruba country. The brown cotton is taken from the silk cotton-tree, (a species of *Bombax*). This immense tree grows on the Gold Coast, and in most other parts of the west coast of Africa. The natives make their canoes, by hollowing it out and shaping it to the required size. The green leaves when just on the point of budding are very wholesome, and are used as vegetables.

12 Specimens of female dresses of country cloth, manufactured at Seluh, a town nine days' journey on foot from Nubba, situated on the left bank of the Niger.

13 Specimens of a female dress, made of country cloth, and generally worn, after having been dyed, by the higher classes as a shawl: it is manufactured at Yabotchy.

14 Specimens of female dresses, made of the country cloth which is manufactured at Kilamij and in Yoruba country.

15 Specimens of female dresses, made of country cloth, and worn by all classes. It is manufactured in Yabotchy and Yoruba.

16 Specimens of female dresses, made of country cloth, and worn by the higher classes. The red silk is to be procured only at Brini Canu: it is sold by the Arabs.

17 A variety of other country cloths, which are made into dresses, and worn by different classes. Manufactured at Yoruba, Abuna, and Egga.

18 Specimen of full-size country cloth, used for dresses by the middle classes: it is also made into counterpanes. It is manufactured at Little Popo, in the Bight of Benyn. The red thread is of European manufacture.

19 Female head-bands, such as are worn by the higher and lower classes. They are manufactured at Yabotchy and Egga.

20 Specimen of a fine dress head-band, as worn by females of the higher class of people. The red silk is brought by the Arabs through the desert, from Tripoli into Hausa country, and amongst other towns, to Birmi or Brini Canu.

21 Specimen of a female head-band, 4 ft. 1 in. in length. The brown cotton is taken from the silk cotton-tree.

22 Specimens of fine and blue-glazed tobies, such as are worn by the higher class of natives. The tobe is glazed in the following manner:—After the cloth has been thoroughly dyed with indigo it is hung up until it is completely dry; it is then spread on a wooden roller, and rubbed by hand with the shell of a snail: this produces the gloss.

23 Fine plain and dyed unbleached cotton tobe.

24 Fine dress striped tobe, such as is worn by the higher classes. The yellow colour is dyed at Kattam Karafi, a town on the left bank of the Niger, a short distance above its confluence with the Chadda. The red silk is brought by the Arabs into the Hausa country.

25 Fine checked short tobe, woven with raw silk: it is worn by the higher classes.

26 Specimen of a fine checked long tobe, and Hausa trousers: it is braided with red silk about the ankles, and is made after the Turkish fashion: it is worn by the higher classes.

27 Strainer or sieve, made out of slips of bamboo: it is manufactured at Brini Canu.

28 Small earthen cooking pot and cover, earthen dishes, and stands for lamps; used by the higher classes.

29 Cushion. The red baize is of European manufacture; the yellow skin is dyed by the natives of Kattam Karafi.

30 Strings of fancy palm-nut beads, made out of burnt kernels. They are worn round the waist and neck by respectable females.

31 Coloured basket, made of bamboo; it is manufactured at Birmi, or Brini, in the Hausa country.

32 Basket to hold provisions, rice, corn, &c.

33 Calabash bowl; a wooden bowl carved out of solid wood; and calabashes of various sizes. Vessels of this kind are used for containing solid and liquid food. All calabashes are made out of a species of pumpkin, which is not edible; it has a bitter taste, similar to that of quassia. It is applied to various purposes, and is made by the natives in the Bights of Benin and Dahomey. The largest sizes are between 12 and 30 inches in diameter. They are used for conveying provisions from one place to another.

34 Specimens of wooden carved ladles or spoons.

35 Bag used for holding corn or articles of commerce.

36 Netted bag, used for exposing articles of commerce in the market-places.

37 Dahomian leather bag.

38 Carved ivory bracelet, from Egga.

39 Two mats from Egga, brought there by Richard Lander, in 1833.

5A M^{WILLIAM}, J. O., M.D. F.R.S. (Principal Medical Officer of the late Expedition to the Niger).

1 Specimen of shea butter, made of the fat of the *Bassia Parkii*, from Egga, on the River Niger.

[In the travels of Mungo Park frequent mention is made of *shea butter*, the product of the shea-tree. He described this tree as resembling "the American oak, and the fruit—from the kernel of which, first dried in the sun, the butter is prepared, by boiling the kernel in water"—as having "sometimes the appearance of a Spanish olive." He remarks of the butter, that it has a richer flavour than the best butter he had ever tasted made of cow's milk, and states that the growth and preparation of it seemed to be amongst the first objects of African industry, and formed one of the principal articles of the inland commerce of a large portion of the region which he traversed. Specimens of the plant, and accurate drawings, were obtained during the Niger expedition. It is a saponaceous tree, of the genus *Bassia*, allied to the Indian oil-trees and others, the fruits of which yield, on pressure, valuable oils.—E. F.]

2 Camwood dye ball, from the confluence of the Niger and the Tchadda.

3 Bow and arrows, with iron barbs, from the Icarri market, on the River Niger.

4 Felatah spear, from Kakundrah.

5 Small musical instrument from Kakundrah, on the River Niger.

6 Specimen of cloth made at the confluence of the Niger and the Tchadda.

7 Specimen of cloths from Egga and Kakundrah, on the River Niger.

8 Specimen of horn ornamented on silk, such as is worn by the females at Iddah, on the River Niger.

9 Small leathern bottles for containing the galena which is used to dye the eyelids. They were brought from the confluence of the Niger and the Tchadda.

10 Tobe, embroidered in front with needlework, such as is worn by the Mallams at Rabbah (Filatah town), on the River Niger.

11 Specimens of breeches as worn by the same.

[These articles, Nos. 10 and 11, are the property of
Sir JAMES CLARK, Bart.]

12 Specimens of knitted and small scarfs from Egga.

13 Specimens of broad-brimmed straw hat, from Kinée, or Icar Market, on the River Niger.

14 Specimens of earthenware, from Icar Market, on the River Niger.

15 Specimens of ropes of vegetable fibre, by means of which the Africans ascend the naked trunks of the palm trees.

16 Specimens of calabash workmanship, comprehending a series of dishes of various kinds and sizes, and platters, spoons, bottles, cups, &c.

17 Pipe, from the confluence of the Niger and the Tchadda.

18 Staff of honour, such as is carried before the African chiefs.

18A Fetische from the River Congo, in the garb of a slave travelling through the country. Bag made by one of the wives of Obi, the king of Ebœ: River Niger. Phosphate of lime from bones, used by the cotton-spinners to dry the tips of their fingers: at the confluence of the Niger and the Tchadda.

5B JAMIESON, JOHN, *Custom-house Agent, London.*

Mandingo cup, sword, and dagger, from the River Gambia.

Calabash and spears, brought from the Gambia.

6 HUTTON, W. B. & SON, 25 *Watling Street.*

1 Dahomey cloth, or dress; manufactured at Abomey, capital of Dahomey, and 90 miles from the sea-coast; presented by the king in 1850. The whole of the material, except the red gown, spun and dyed at Abomey. The cloth measures 5 yards by 2½ yards, and was made in a loom 5 inches wide.

2 Dahomey chief's throne and cushion; made at Abomey, capital of Dahomey, and 90 miles from the sea-coast; presented by the king of Dahomey. The stool carved out of a solid block of wood (sessaw-tree).

3 Tusk of the queen elephant.

4 Grass hat, made and worn by the natives of Dahomey.

5 Popo cloth, or dress; manufactured at Popo, on the Oil Coast. The whole of the material, except the red, gown, spun, and dyed in the country; the cloth measures 3½ yards by 2 yards, and was made in a loom 20 inches wide.

6 Basket, manufactured by the natives of Little Popo.

7 Ashantee chiefs' cloth, or dress; manufactured at Coomasey, capital of Ashantee, several miles distant (in the interior) from Cape Coast. The whole of the cotton, except the red, gown, spun, and dyed in the country; the cloth measures 4 yards by 3½ yards, and was made in a loom 3 inches wide.

8 Copper weights, used by the Ashantees for weighing gold. Cast in clay mould.

9 Powder and shot belt, made of leather, in the neighbourhood of Cape Coast.

10 Specimen of the intergrowth of two branches of different trees, from Cape Coast.

11 Dagger; made at Grand Bassam.

12 Grass-cloth; the material grown and dyed by the natives of St. Andrew's, Ivory Coast. The only article of clothing worn by the natives.

13 St. Andrew's drum, made of monkey-skin.

14 Mandingo cloth, manufactured by the Mandingos, on the River Gambia. The cotton grown, spun, and dyed in the country.

15 War-dress and sword, made and worn by the Mandingos on the River Gambia.

16 Fiddle, made and used by the Mandingos, River Gambia. Specimens of palm fruit, kernels, and oil. Specimens of palm-kernel oil, and kernel-oil soaps. Ground nuts, oil, and soap.

7 KING, R. & W., *Bristol.*

Three cushions from the king of Dahomey. Two pieces of cotton cloth of the same country.

8 FORBES, Commander F. G. (R.N.)

Two weavers' looms, chief's stool and footstool, and two lamps, from Dahomey.

Dress worn by the Amazons of the king of Dahomey.

Bag manufactured at Wydah.

9 MATSON, Captain (R.N.)

Cap, as worn by the chiefs of Kabenda, Congo.

Musical instrument, with a gourd as a sounding-board, River Congo.

Fetiches, from the country on the banks of the same river.

10 MILLER, T. Esq., *Ireland*, and also of *San Nicolas, Cape de Verd Islands.*

Door-lock, as used at the Cape de Verd Islands. This lock is nearly the same as that which has been in use with the Egyptians for some forty centuries.

11 TOWNSEND, G., Esq., *Exeter.*

Specimens of cloth. A market basket. Iron bracelets. A dress, as worn by the natives. A drum. All from Abbokuta.

12 BEECHAM, Rev. Dr.

Hat and messenger's bag of Mandingo manufacture, from the Gambia.

Large Ashantee cloths. Pipes, from Coomassie.

Brass figures, used as weights.

Chief's stool and large round cushion, from Ashantee.

Cartouche box of Dahomey manufacture.

Two market-baskets, water-pot, and market-bags made of grass, from Badagry.

Specimen of raw indigo, from Abbokuta.

13 TOWNSEND, G., *Exeter.*

Various articles from Abberkutu, a town of 50,000 inhabitants, in the Yoruba country.

14 ACLAND, Lady.

Two pieces of native cloth from Abbokuta.

15 FORBES, Commander F. G. (R.N.)

Various articles from Dahomey.

16 SUTHERLAND, Her Grace the Duchess of.

Various birds, from the River Niger.

17 ACKLAND, Sir T. D. Bart., M.P.

A sword or hatchet, from Abbokuta.

18 STRAITH, Major H.

Two grass cloths from Abbokuta.

19 FADDY, Col. P., R.A., *Woolwich*.—Proprietor.

A koodoo, a harte-beest, and a water-boc (a male), killed by Captain Faddy, R.A., nearly 2,400 miles from Cape Town, in Kaffirland. The water-boc (a male) is the only specimen that has ever been brought to Europe.

20 FADDY, Mrs. Col.—Producer.

Gold arabesque scarf of Fez manufacture.
Pair of Barbary ladies' slippers.
Vase of Barbary ware.

21 HUTTON, JAMES FREDERICK, 25 Walling Street—Importer.

African produce:—Cotton cloth, made by the slaves of the king of Dahomey, at Abomey, 90 miles in the interior of Africa. Cushion for a seat, made at the same place, and by the same people. Cotton cloths made at Popoe, on the Slave Coast of Africa, and at St. Andrew's, West. Grass cloths, for wearing round the loins. Cotton cloths, from the banks of the river Gambia. Baskets, from Popoe. The cotton of these manufactures is grown and spun in Africa by the natives; all the dyes are native, except the red.

22 JAMIESON, R., Esq., Liverpool.

Articles from the country on the banks of the Niger and other parts of Western Africa:—

- 1—4 Copper jug, &c. 7 Earthenware pot.
10—15 Calabashes, with rings, and with spoon.
18 Basket. 27—29 Three combs. 32 Rings.
33 Tablet. 34—38 Five fans.
39—41 Grass fan; specimens of antimony ore; and pepper.
42—63 Two grass bags; pain sandals; boots; flask; brass case, earthenware, and kid skin for antimony; spurs; tin case for papers; leather knife; reaping-hook; small arms; leather wallet; string of beads; leather threads; beads.
65, 66 Two knives.
67—69 Calabash handles; leather; nuts.
79 Spear-head.

23 SWANZY, A., Esq.

Specimens of rock gold, from Ashantee.

24

Specimens of Dahomian cloth, from Porto Rico.

GOLD COAST AND ASHANTEE.

A COLLECTION of a variety of articles of native production, forwarded by two exhibitors, form the contribution of this district to the Exhibition. The miscellaneous objects thus offered to view present many interesting subjects for study.—R. E.

1 FORSTER & SMITH, Messrs.

Ashantee glass armlets, composed of glass obtained by melting down European beads. Cotton cloth prepared with native dyes. Silk cloth woven from silk threads obtained by unravelling European silk goods. Copper figures, used as gold weights by the natives—all from Ashantee.

Weaving and spinning instruments; cotton cloths; gold ornaments; pottery used for cooking; pipe heads and pipe stem; native leather; grass and mixed grass and cotton cloths—all from the Gold Coast.

ST. HELENA.

SOUTH AREA, Q. 32.

THIS small but interesting island, represented by four exhibitors, has sent a few specimens of its products to the Exhibition. The Agricultural Society recently established in the island, with a view to promote the cultivation of several plants which may yield a profitable return to the farmer, has forwarded specimens of

raw cotton, a box of alkali, and some rock salt. Coffee has also lately been grown on the island, and a specimen is sent for examination. Interest will be excited by a few minerals from Longwood, the residence of the Emperor Napoleon.—R. E.

1 MASSANS, SAMUEL.
Sample of coffee grown in St. Helena.2 AGRICULTURAL SOCIETY of ST. HELENA, per Capt. BOLTON, 18 Wilton Street, Belgrave Square.
A box of raw cotton.
A box of alkali, made from the Salsola plant.
A bar of rock salt.3 MAGNUS, SAMUEL, 127 Fenchurch Street.
A bag of coffee from St. Helena.

4 BLOFELD, JOHN HARCOURT, 4 Hemus Place, King's Road, Chelsea—Producer.

Large volcanic stone taken from the wall of the Emperor Napoleon's drawing-room. Piece of stucco from the same spot, and made with the St. Helena lime, which is different to the European. Presented to the exhibitor by Captain Mason, the present leaseholder of Longwood.

Piece of limestone from the top of a hill by Sandy Bay. Lime from the kiln, at Sandy Bay. Stone impregnated with nitre, from the Red Stone Quarry, by James Town. Nine specimens of rocks.

Six petrified shells, "Bulimus," now extinct, from a stratum 1,700 feet above the level of the sea, and from a spot a little behind Longwood. Box, containing earth in which the above are found. Box, containing birds' bones, which abound in the same stratum. Also some fragile shells found in a stratum on a hill above the "Briars," and about 1,200 feet above the level of the sea.

Partially petrified birds' eggs. Similar substances abound in the stratum, which is supposed to be the remains of a bed of earth, which, at a very distant date, was the abode of numerous aquatic birds; and that this stratum (portions of which are in the boxes sent) consists of earth saturated with, and partly consisting of, the debris of their eggs, feathers, dead bodies, nests, the remains of the animals on which they fed, &c. In St. Helena, it is considered that the white substance in the stratum is the pulverized remains of the shells "Bulimus."

Three petrified shells; bivalves. Four pieces of coral from a depth of 380 feet, but within 4 feet of the shore. Three pieces of cement, painted black on the surface, from the interior sarcophagus of Napoleon's grave.

Piece of the willow tree, under which Napoleon was buried; exhibited as a vegetable production peculiar to the island.

Snuff-boxes: French polished, made from this tree; varnished, to show the wood in its plain state; and made from a willow tree which Napoleon planted behind the library at Longwood.

St. Helena cotton, with seeds. Coffee seeds and plums. Carraway branches, with seeds. One reed. Two excrescences from fir trees in the plantation at Longwood. Seeds of cow-grass. A capsicum. Part of the stem of a branch of ginger. Small branch and plums of the banyan tree. Stem and flower of the sweet-smelling geranium, from the Briars. Two sea-beans.

Buds and flowers of the "red wood;" the flowers grow in pairs, one white, the other crimson. The tree is indigenous to St. Helena. Three small pieces of Napoleon's coffin, made of this wood.

Leaves and embryo fruit of the sago pine. Branches of the "gum wood" (indigenous to St. Helena) from the avenue at Longwood. Modern shells, various. A number of the St. Helena Gazette, and of Saul Solomon's Shipping List.

MAURITIUS.

SOUTH AREA, Q. 31.

THAT part of the natural history of a country which is in direct relation with commerce is generally the most universally interesting, and the objects included in this collection are those which appear as its representatives in this instance. The production of raw silk is engaging much attention in the Mauritius, the natural capabilities of the land and climate appearing favourable to its prosecution. Sugar, cocoa-nuts, rice, and spices, form important articles of the commerce of the island, in addition to its export of ebony. Of sugar, a few years since this island exported to England nearly seventy million pounds in one year.—R. E.

1 GREY, The Countess.

Basket and wreath of flowers from the Séchelles Islands, made from the leaves of the palm of the Séchelles (*Nipa fruticans*). A nest of baskets.

2 DUPONT, EUGÈNE, Esq., Port Louis—Producer.

A packet containing seven pounds of white silk, the produce of the island of Mauritius, from silkworms reared in the district of Tamarin.

[The quality of the silk must not be taken as a criterion of what Mauritius will produce, as the manufacture is in its infancy, and has only lately been commenced. About 300 acres of ground have been planted in the cooler districts of Mauritius with mulberry trees, which have rapidly grown up and are now fit for use. A company has been formed in Mauritius by the exertions of a barrister and planter there, called the "Filature Evénor Centrale." An experienced "fileuse," Madame Bouldieu, has been engaged from the neighbouring island of Bourbon, and is now giving instruction to various proprietors. Some ten persons rear worms and send to the Company regular supplies of cocoons, and eighty-seven other proprietors have received cocoons and mulberry cuttings from the Company. It is considered that this manufacture will flourish and increase rapidly in the island, and form eventually an important branch of trade, the climate and the soil being peculiarly suitable to the profitable rearing

of the silkworm. From Bourbon it is stated that silk was sent to Paris of such fine quality as to fetch 111 francs per kilogramme, or about 27 *ds.* the pound.]

3 WEBB, CHARLES JOHN, London—Importer.

A bag of Mauritius sugar, the produce and manufacture of the Phoenix estate, obtained direct from the sugar-cane expressed in a horizontal mill; the juice clarified by steam; evaporated to 27 Beaumur in common open iron pans; filtered through bags and animal charcoal; boiled in a Howard's vacuum-pan. This sugar is said not to have been re-boiled, re-made, or refined in any way, but to be pure cane sugar, without the admixture of bullock's blood or any albuminous substance, or the employment of any acetate of lead.

4 THE ROYAL SOCIETY OF NATURAL HISTORY OF MAURITIUS (Imported by A. SYKES, 107 Leadenhall Street).

Cases of straw baskets, rice, liqueurs, and cocoa-nut oil; a bag of cloves, a dial, and a cask of cocoa-nuts.

5 BALEFIELD & Co., on behalf of Mad. E. CHAPON and Mdlles. GANCOUET (Importers, Messrs. S. BAKER & Co., London).

Works and ornaments in straw, made on the Séchelles. Bouquets in shell-work; baskets made of leaves of the cocoa; vases, dials, &c.

6 MELLON, M.

Small casks of cocoa-nut oil. Woods found on the Séchelles. Specimens of sea cocoa-nuts.

A case of choice liqueurs, in 12 bottles, from the manufactory of M. Eug. Bérichon.

7 READER, J. S.

A case containing samples of Mauritius rice, grown on the "Champ de Mars," Port Louis, raised without any irrigation or other watering. The sack containing the sample is made of the leaves of the Vacona tree (*Oryza sativa*), the ordinary package of the colony for sugar. The soil very dry, and exposed to high and drying winds. Rice of this kind is said to possess flavour and farinaceous quality, at least equal to that exhibited in Carolina rice.

A variety of ornamental basket work from the Séchelles. A *Coco-de-mer*. Sample of cloves, &c.





IV.

BRITISH POSSESSIONS IN AMERICA.

CANADA.—NEW BRUNSWICK.—NOVA SCOTIA.
NEWFOUNDLAND.—BERMUDAS.
WEST INDIES.—BRITISH GUIANA.—FALKLAND ISLANDS.

Figure dependencies of Great Britain are enumerated under this head. Of these, the most extensive collection of articles is that from the important possessions of this country in Canada. This collection, which is more particularly characterised below, is rich in raw materials and products. The other dependencies named are represented but by few exhibitors; but the articles exhibited deserve the attention of all interested in the commercial well-being of the countries and islands represented.—R. E.

CANADA.

SOUTH ARRIS, L. M. 31, and N. O. 31, 32.

THIS vast and important territory is represented in the Exhibition by about two hundred and twenty exhibitors. The articles contributed by it are distributed among several Classes, but the raw materials preponderate; and of these a highly-instructive series is presented. The efforts which have been made by the Government at home to develop the mineral wealth of this colony have been amply rewarded by the success which has attended the explorers, and the results which in some measure are brought to notice in the Exhibition. A detailed account of the geological survey and its fruits will be found in this Catalogue. Many of the minerals exhibited must take an important commercial position on their locality and means of transport becoming known and developed. Among other and in reality more precious metals, the discovery of gold in the drift of the Eastern Townships along the south-east side of the Green Mountain range will be regarded with curiosity. Some fine specimens are exhibited, one of which weighs about a quarter of a pound. Copper promises to be more available for direct commercial purposes, and a cake of this metal is sent for exhibition. In this instance the ore has been smelted in Canada. A still more important mineral is the specular iron ore, of which a most valuable and important bed exists near the waters of the Ottawa, with abundant sources of water power, and ready means of transport. Most excellent iron is obtained from the ferruginous ore, wood charcoal being employed in its manufacture: it is comparable in its qualities with Swedish iron; and the stones and cast-iron work made from it are less liable to crack than those made in this country. In addition to metalliferous minerals, the serpentine and steatite, plumbago, asbestos, and lithographic stones, promise to become valuable sources of native wealth. Of these fine specimens are exhibited.

The Canadian timber, represented by the carefully-arranged Trophy in the centre of the Western Main Avenue, is scarcely less interesting to the naturalist and merchant than the minerals. The excellent qualities of this timber for useful and ornamental purposes are illustrated in the specimens of furniture exhibited. The great futtocks for ship-building, yielded by the tamarisk tree, are likewise interesting. Timber constitutes a very prominent feature in the export commerce of the country; the white and red pine, the black walnut, maple, cedar, beech, and butter-nut, are among the more important. Among other articles of vegetable origin, the canoe, made of the bark of the white birch, will be regarded with interest. This fragile vessel has in safety made a voyage of three thousand miles, carrying a crew of twenty passengers, with their provision and other necessaries.

The agriculture of the country is largely represented. The specimens which appear in this capacity are in themselves without general interest, consisting of such articles as barrels of wheat, flour, &c.; but regarded in connection with the productive resources of the country from whence they have proceeded, they are not behind more pleasing objects in their value and attraction. The Canadian winter pastime of sleighing is illustrated by the elegant single and double sleighs sent to the Exhibition. Among the manufactures of another kind are specimens of dressed porpoise-skin and whale-skin, employed as a substitute for leather with advantage. In a comparatively new country like Canada, the manufacturing arts are still in an early stage of their development. At present her supplies of colonial produce and manufactures are derived from the mother-country: the specimens of domestic manufacture sent over to the Exhibition show the progress Canada is making in those arts; whilst the development of her great national resources is the first aim of her inhabitants. It is not, therefore, to be expected

that much attention can be given to arts that are yet in their infancy. Still the specimens sent will convey to the English artisan an idea of the field there is for the exercise of his calling. The blankets, horse-cloths, and grey *etoffe du pay*, will bear comparison with those of any country.

Among other miscellaneous objects, a piano, manufactured of Canadian woods, specially fitted to endure the changes induced by the vast change of temperature in this country, will be regarded with attention, as will also a church bell forwarded from Montreal. A very prominent object exhibited is a handsome fire-engine of great power. The alarming nature of the conflagrations occasionally breaking out in Montreal renders the possession of powerful means of extinguishing them highly necessary. This engine is capable of throwing two streams of water to a height of 160 feet each. A number of native curiosities adds to the value of this collection.—R. E.

1 LOGAN, W. E. (Director of Provincial Geological Survey)—*Montreal.*

Specimens of magnetic specular and bog-iron ores:—
Ilmenite and titaniferous iron.

Sulphurets of zinc, lead, copper, nickel, and molybdenum.

Native silver and gold.

Bog manganese.

Iron pyrites.

Uran ochre.

Cobalt bloom.

Chromic iron.

Dolomite and magnesite.

Iron ochres, barytes, and other stone paints.

Lithographic stone.

Agate, jasper, Labradorite, and ribboned chert.

White quartzose sandstone, for glass-making.

Soap-stone, asbestos, plumbago.

Phosphate of lime, gypsum, and shell marl.

Millstone rock, whetstones, and Tripoli earth.

Roofing slates, granite, serpentine and various qualities of marble and limestone.

Peat petroleum and mineral pitch.

[The variety and importance of the minerals of Canada claim a more extensive notice than can usually be given. They have but recently become known; and with a view to promote a collection of them for the purposes of the Exhibition, the Executive Committee of the Canada Commission, last year, prepared a catalogue showing the localities of many of them; and from this, and the various published reports of the progress of the Canada Geological Survey, which has now been in operation under provincial authority for seven years, much information may be obtained. The country abounds in the ores of iron, consisting of the magnetic and specular oxides, and the hydrated peroxide or bog ore. The first occurs chiefly in a formation consisting of gneiss interstratified with important bands of highly crystalline limestone, and the formation sweeps through the province from Lake Huron to Labrador, keeping, at a variable distance, north from the left bank of the river St. Lawrence and its lakes, crossing the river at the Thousand Islands only, below Kingston, to form a junction with a great peninsular-shaped area of the same, occupying a mountainous region in northern New York, between Lakes Champlain and Ontario. The ore appears to lie in beds running with the stratification usually highly inclined, and the beds occasionally attain a great thickness. A bed which is now worked in the township of Marmora, and of the iron resulting from which samples have been sent, presents a breadth of 100 feet; another, the ore of which has been

mined and smelted in Madoc, has been traced several miles with a breadth of 25 feet; on Myers' Lake, in South Sherbrooke, there is a 60-foot bed; in South Crosby, a bed 200 feet in width comes upon the Rideau Canal, where it is not far removed from great water-power; and in Hull there is a 40-foot bed at no great distance from the navigable water of the river Ottawa. From all these localities, and others, specimens have been contributed, and the produce of the ore in pure metal generally ranges from 60 to 70 per cent.; that of South Sherbrooke is 63, and of Hull 69 per cent. Where the mineral has been acted on by the weather, it frequently breaks up with facility into grains related to the forms of the crystals of the magnetic iron ore, and may be easily ground and separated from earthy impurities by means of a machine in which the action of the magnet is made available. A portion of the Hull bed is in this condition; and of this bed every fathom in length by a fathom in vertical depth, taking the breadth at one-half only of what it appears to be, would produce between 60 and 60 tons of pure metal. Wood for fuel is in abundance near all the localities.

Specular iron ore appears to belong to the same geological formation; and a valuable and important bed of it occurs in the township of Macnab. It is 25 feet thick, and containing 58 per cent. of pure iron, the produce of the bed would not be under 50 tons of metal for every fathom forward by a fathom vertical; but though within a mile of the navigable water of the Ottawa, where steam-boats daily pass, and but 300 or 400 yards removed from a cascade on the river Dochart, giving ample water-power to drive machinery, the bed has never been touched for available purposes. Specular iron ore occurs also on the north shore of Lake Huron; but it is here in a formation which succeeds the gneiss, consisting of quartz rock, slates, and trap, and is noted as belonging to part of the copper-bearing region of the province.

Bog-iron ore exists in large quantities in both sections of the province. In Western Canada it prevails in the county of Norfolk, where it has been used to supply the wants of the Normandale Iron-works. It occurs in many places in the valley of the Ottawa, and specimens of it have been sent from Vaudreuil, Stanbridge, Simpson, Rivière du Chêne, St. Maurice, Portneuf, St. Vallier, and other parts, where in general it yields upwards of 50 per cent. of pure metal. That of Vaudreuil, within a short distance of the navigable water of the Ottawa, yields to analysis 76.95 per cent. of peroxide of iron, equal to 53 per cent. of pure metal, and the deposit is represented to be four feet thick. At the Forges of St. Maurice, near Three Rivers, this species of ore has been used for upwards of half a century in the manufacture of iron. The cast stoves from it bear a high character through the country, being less liable to crack than the imported ones; and specimens of the wrought iron produced there have been sent to the Exhibition. The quality of the metal, wood charcoal being the only fuel used, bears a comparison with that of Sweden, and it is to compete with this that it is manufactured.

The geological formation which abounds in magnetic yields also titaniferous iron, the composition of which, at St. Urbain, in Bay St. Paul, below Quebec, is—

Oxide of titanium	48.60
Protoxide of iron	37.06
Peroxide of iron	10.42
Magnesia	3.60
	99.68

This result is sensibly the same as that obtained by Rose for the titaniferous iron ore from Ilmenite, in the Urals, to which he has given the name of Ilmenite. One of the masses is 90 feet wide by a visible length of 300 feet; in some parts it consists of an admixture of ilmenite and rutile; and if the consumption of the compounds of titanium in the arts should increase, the localities of Bay St. Paul might be made to furnish an inexhaustible supply. Titaniferous iron ore occurs also on the south side of the St. Lawrence, in what are termed the Eastern Townships, through which runs a continuation of the Green Mountains of Vermont. The prolongation of this range into Canada is composed of rocks belonging to the lower Silurian age, and there presents a crystalline condition from the metamorphic action of heat, displaying chloritic and talcose slates, serpentine and other magnesian forms: beds of iron ore, in general more or less magnetic, are frequently repeated among them by undulations; they prevail in the townships of St. Armand, Sutton, and Brome, where many occur varying in breadth from 2 to 15 feet, and in produce of pure iron from 20 to 50 per cent. One of 45 feet width, occurring in serpentine, in the seignory of Rigaud Vaudreuil Beauce, is a mechanical mixture of about two-thirds magnetic iron, and one-third ilmenite; and when the ore is reduced to a powder these are readily separable from one another by means of a magnet. But in general those beds which occur in the chloritic slate of St. Armand, Sutton, and Brome, contain a variable but much smaller proportion of titanite iron; and several of them have been mined, and their ores advantageously transported, by land distances of 30 and 40 miles, to smelting establishments in the State of Vermont, for the manufacture of iron. Though wood abounds in the district, none of the ores have been turned to smelting purposes in Canada.

Lead ore is met with in several parts of the province. It occurs in veins, cutting the stratified gneiss and limestone already mentioned, where the veins intersect the calcareous part of the formation, and in this relation it exists in Bedford, Bastard, and Fitzroy. In Bedford several of these veins, varying in breadth from two to four feet, have been tried, and small pits sunk upon them; but none of the mines are at present in operation. The ore occurs also in the succeeding formation, associated with copper, on the Canadian shores of Lake Superior; and in Gaspé, it is met with in Indian Cove in transverse veins, cutting a still more calcareous deposit of the upper Silurian age. As this rock is supposed to be the equivalent of the great lead-bearing formation of Wisconsin, galena may probably be expected, where the rock is found in a disturbed condition in Canada, and cut by dislocations, thereby affording an opportunity for the occurrence of lodes. The rock presents these conditions in Gaspé, but it has hitherto been but little examined. With the exception of some of the specimens from Lake Superior, silver has not been found to accompany the lead ore.

Zinc ore occurs, associated with copper and silver, on Lake Superior; but the quantity met with has not yet been sufficient to promise a profitable return.

Belonging to a formation which is interposed between the lower Silurian rocks and the gneiss, an extensive copper region occurs in Canada. From the boundary of the province at Pigeon River, it ranges along the northern and eastern shores of Lake Superior, and the north shore of Lake Huron, for a distance exceeding 400 miles. On Spar Island, in Prince's Location, a 4½-foot lode, holding vitreous copper in a gangue of calc-spar, barytes, and

amethystine quartz, cuts clay slates overlaid by greenstone trap, and yields, on the average, about 7 per cent. of pure metal. On several islands of the Archipelago, which separates Neepigon Bay from the main body of Lake Superior, native copper occurs; and on St. Ignace Island, which is the largest of them, a vein of about 2 feet, running with the stratification, has been traced the whole length of the island. Fine specimens of native copper were obtained by sinking a shaft on this lode. Many of these specimens were beautifully crystallized; vitreous copper often accompanying the native. Native copper occurs also in Michipicoten Island; and the formation of this island, and of the islands of the Neepigon archipelago, consisting of greenstone and amygdaloidal trap, interstratified with sandstone and conglomerate, is in every respect the same as that of the *Cliff*, and other mines on the south side of the lake, celebrated for the large masses of native copper which they have produced. At Mica Bay and Mamainse, the vitreous and yellow sulphurets, as well as the native copper, have been obtained. On the north shore of Lake Huron the prevailing description of copper ore is the yellow sulphuret, and the veinstone is usually quartz. The prevailing rocks of the country are greenstone trap, slate, and quartz rock, interstratified with one another; and it is in places where the lodes cut the greenstone that they become most productive, while they are least so in the quartz rock. Although lodes exist in several parts, it is only those of the Bruce mines that have been worked to any extent. In July, 1848, on a close examination of the lodes by the geological survey, a length of 300 fathoms, with a depth of 10 fathoms and a breadth of 4 feet, gave an average of 6½ per cent. of available pure metal; and 1,475 tons of vein stuff on the surface, as it had come from the lode, then sampled, gave 8 per cent. The ore has sometimes been dressed to 23 per cent., and generally to between 15 and 20 per cent., at which produces several hundreds of tons have been sent to Boston; and 200 tons, of 15½ per cent., intended for Swansea, are now in Montreal. Smelting works have been established at the Bruce mines, and a cargo of tough cake copper shipped to the United States, one of the cakes of which has been sent to the Exhibition as a sample. The furnaces are of the reverberatory description, and the fuel used is bituminous coal, obtained at Cleveland, on Lake Erie. Wood abounds in the vicinity of the mines.

The yellow sulphuret of copper occurs at the Wallace-mine location, near White Fish River, to the eastward of the Bruce mines, in thin strings, supposed to be leaders to some main lode not yet discovered; and these are worthy of notice, from the fact that sulphuret of nickel accompanies the copper, disseminated in patches, and the nickeliferous part of the ore, when freed from earthy impurities, is found to contain 13 per cent. of pure nickel; traces of cobalt accompanying the nickel.

Copper ore occurs in the metamorphic rocks of the Eastern Townships in Upton, associated with silver, and in Ascott with silver and gold; but the quantity does not yet appear in any instance to hold out much prospect of a profit. Silver is associated with the native copper of Michipicoten and St. Ignace Islands. Native silver is also met with in small quantity accompanying the vitreous copper of Spar Island, on Prince's Location; and there is present also with it a trace of gold: cobalt occurs with them in small quantity, in the form of cobalt bloom. The lode on this location can be traced from the island to the main shore, and it then gives larger indications of silver, which is occasionally met with, associated with

blende, in thin leaves, following the cleavage joints and other crevices in the calcareous spar of the gangue. A pocket of this description, containing about 4 cwt. of good ore, gave an average produce of $3\frac{1}{2}$ per cent., or 72 lbs. of pure silver to the ton of rock, and the commercial value of the ore in London was given as \$330. per ton. Want of capital has prevented the present proprietors from prosecuting their researches; but samples of the ore, and silver smelted from it, are exhibited.

Native gold exists in the drift of the Eastern Townships, along the south-eastern side of the Green Mountain range. Its presence has been ascertained, by the investigations of the geological survey of the province, over an area comprising between 3,000 and 4,000 square miles, with a breadth of about 40 miles, from the seignory of St. Mary on the Chaudière to within 6 miles of the province line on the Kennebec road, and a length of 90 miles, from Etchemin Lake, in Cranbourne, to the vicinity of Lennoxville. It appears to be very generally disseminated in the clay and gravel of the district, but so thin as to promise little, except in occasional patches, where the drift having been washed by the action of various streams, which have worn their channels in it, the metal has been concentrated, and remains caught by the cleavage joints and various cracks and crevices of the clay slates which form the country. The localities where small quantities have been met with are too numerous to be mentioned; but selected specimens from the workings of the Chaudière Mining Company, on the Touffe des Pins, in the seignory of Rigaud Vaudreuil Beauce, have been sent to the Exhibition, weighing from a few grains to a quarter of a pound, and smaller pieces from other localities from the museum of the geological survey.

The rocks and minerals in the range of the Green Mountains, flanking this auriferous deposit, are such as are usually met with in other countries where gold occurs; and one among the minerals is chromic iron. Beds of this, of 12 to 14 inches thick, exist in serpentine, in Bolton and Ham, and yield 45 to 50 per cent. of oxide of chromium. Specimens of the ore are exhibited from both localities.

Important veins of iron pyrites occur in the seignory of Terbonne and that of La Norraye and Dautraye. Wad, or bog manganese, is met with in several parts of the Eastern Townships, and traces of uranium in Madoc.

Many of the rocks and earthy minerals are worthy of attention as commercially valuable. A pure white dolomite, with 45 per cent. of carbonate of magnesia, exists in great abundance on Mazinaw Lake and in various parts of the Bathurst district in Western Canada, from which specimens are exhibited from Burgess and Blythfield. It exists also in the Eastern Townships of Lower Canada; but it is there associated with the more important rock magnesite, serving the same purposes, and containing 83 per cent. of the carbonate of magnesia. This is found in large quantities in the townships of Sutton and Bolton. Of stone paints, barytes occurs in large quantity in veins on Lake Superior, and in smaller in Bedford and Bathurst; and there exists a great abundance of iron ochres, giving various beautiful tints, allied to Sienna brown. Of these there are contributions from five different parts of the lower province. Lithographic stone, in beds of 1 to 2 feet thick, is found at Marmora, and appears to range all the way to Rama on Lake Simcoe, a distance of 70 miles. Stones of all ordinary sizes might be obtained, but no quarry has yet been opened on the beds. The specimens contributed are from Marmora, and the largest is 24 by 16 inches and 3 inches thick.

Of materials used for jewellery, agates abound on Lake Superior, on the islands of the Neepigon archipelago, and Michipicoten island; a 6-foot bed of jasper occurs at Sherbrooke, and jasper pebbles on the shores of Lake Superior and in Gaspé. Two beautiful descriptions of ornamental stone, which have been called perthite and peristerite by Dr. Thompson, but appear to be species of labradorite and aventurine, occur in Bathurst. White quartzose sandstone, fit for glass-making, exists in various parts of the province, and glass is manufactured from it at Vaudreuil and St. John. Plumbago is met with in veins of a workable size at Grenville; asbestos in abundance in Dalhousie; and large beds of pure soapstone prevail in the Eastern Townships in Potton and Bolton. Its sectile and refractory nature render it well adapted for furnace linings, stoves, baking-stones, and other forms into which it is manufactured in the neighbouring states; but though it is imported into Canada in various shapes, none of the native quarries are yet resorted to for economic purposes, with the exception of its application as foot warmers for winter journeys. The material being a slow conductor, a slab of it heated, enveloped in a blanket and placed in the bottom of a sledge under the feet, will ensure a comfortable degree of warmth to the traveller for a long distance.

The province is not deficient in mineral manures. Phosphate of lime occurs in large crystals, thickly disseminated in carbonate of lime, in extensive beds in Burgess, from which several specimens are exhibited, and in Westmeath and Hull. Gypsum prevails in flat conical masses of acres in extent, in a formation which runs along the course of the Grand River from Cayuga to Dumfries, and is mined in various places: ground at various mills it constitutes a considerable article of trade for agricultural purposes. Large blocks are exhibited from four localities in the valley of the Grand River. Shell marl is a very abundant production in numerous parts of both sections of the province. It occurs in the bottoms of ancient and of existing fresh-water lakes, and being a result from comminuted shells, is a nearly pure carbonate of lime. In four or five small lakes near New Carlisle, on the Bay Chaleur, it is composed of the calcareous remains of microscopic testacea; and, being as fine and white as flour, it has been purchased by chemists for their purposes.

Various rocks of the country, such as granite and whitish trap, and beds of silicious conglomerate in a formation called the Potsdam sandstone, afford native millstones, which are in use in many parts of the province. A rock called the gray band, at the top of the lower Silurian group, gives grindstones in Esquezeing and other parts, and whetstones have been manufactured from bands of talcose slate in Madoc, Stanstead, Hatley, and Shipton. Tripoli earth, resulting from a silicious infusorial deposit, is obtained from the seignory of La Norraye and Dautraye, and from the clay cliffs in the vicinity of Montmorency. Roofing slates have been quarried in Frampton, and they occur in still untouched ground in Kingsey and Halifax, and in great abundance on the Rivière du Loup above its junction with the Chaudière. Good flagstones abound in the vicinity of Toronto and in the Eastern Townships. The chief part of the building stones of the province are of a calcareous quality, and they have been extensively used in the construction of the locks of its various ship and barge canals and the best houses of the principal cities. In the western part of the province, what is geologically

called the corniferous limestone formation, yields good stone at Amherst. The Niagara limestone, running from the great falls of that name by the upper end of Lake Ontario to Cabot's Head and the Manitoulin Islands, has been extensively worked at Thorold for the purposes of the Welland Canal, and some of the structures of Toronto. Beneath this limestone the sandstone of the gray band, already mentioned, affords excellent building stone at Hamilton. To the eastward, the Trenton limestone yields good building material from Lake Simcoe to Kingston, and from Brockville to Vaudreuil. The same formation is resorted to from Bytown to Montreal, where it has been very extensively used for the best edifices of the city; and it is also available in many parts between Montreal and Quebec. A sandstone, which underlies this, geologically designated the Potsdam formation, is quarried for building purposes at Beauharnois and several places near the mouth of the Ottawa. A beautiful white granite of superior quality for building purposes, splitting into rectangular forms, is obtained in many parts of the Eastern Townships, south of the Green Mountains. A block of this from Stanstead is exhibited. Various useful qualities of marble are obtained in Macnab, and at Grenville, Phillipsburgh, St. Dominique, and other parts; and a band of serpentine has been traced 135 miles through the Eastern Townships from Pottton to Cranbourne, which promises a great variety of material suitable for ornamental architecture, but as yet no quarries are opened on it.

Peat occurs in some abundance in the flat country on the south side of the valley of the Ottawa, and in a similar district on the south side of the St. Lawrence; and specimens of it from St. Dominique, having been experimented on and analysed, show it to be a good fuel: it contains—

Fixed carbon	29.57
Ashes	6.75
Volatile matter	63.68

100.

Petroleum is met with in springs in the Gaspé district, on Silver Brook, a small tributary of the River St. John, and at the mouth of this river; and naphtha is collected on the Thames River at Mosa. A bituminous deposit, in the form of mineral pitch or mineral caoutchouc, occurs in Enniskillen, in a bed of about 2 feet thick, and it is said to extend over several acres. Bituminous shale, such as is used in England for the distillation of naphtha and other products of the kind, occurs in Bosanquet, Zone, Collingwood, Port Daniel, and other places.

A great number of the mineral springs of the province have been analysed. The chief part of those of a saline character contain bromine and iodine, and some of them have traces of baryta. A copious spring in the township of Charlotteville, not far removed from Port Dover on Lake Erie, yields nearly twice the quantity of sulphuretted hydrogen contained in the celebrated Harrowgate water; and another near Brantford, with three more in the same vicinity, holds free sulphuric acid.—W. E. LOGAN, *Director of the Geological Survey of Canada.*

2 WILSON, Dr. J., *Perth.*

Magnetic iron ore, from South Sherbrooke.
Phosphate of lime, from Burgess.
Dolomite, from Dalhousie.
Serpentine, from Burgess.
Perthite, peristerite, and graphic granite, from Bathurst.

3 DICKSON, Mr. Sheriff A., *Packenham.*

Specular iron ore from Macnab.

4 MARMORA IRON COMPANY, *Marmora.*

Pig iron, smelted at their furnace, from the magnetic ore of the township.

5 FERRIER, Hon. J., *Montreal.*

Bars of axe iron; square of bar iron; folded iron, cold; twisted iron; horse-shoe iron; ploughshare; pig of Marmora iron.

Collection of minerals. Specimens, gypsum; specimens, geological; specimens, shell-marl.

6 LANCASTER, —, *Vaudreuil.*

Specimens of bog-iron ore, and phosphate of iron.

7 PROULX, J., *St. Eustache.*

Specimens of bog-iron ore, from Rivière du Chêne.

8 MARCOTTE, F., *Portneuf.*

Specimens of bog-iron ore.

9 MORIN, Captain, *St. Vallier.*

Specimens of bog-iron ore.

10 MONTREAL MINING COMPANY.

Copper ore, from Bruce mines, Lake Huron, and tough cake copper, smelted there from the same. Native copper and silver, from St. Ignace Island, Lake Superior.

11 BADGLEY, J. F., *Montreal.*

Silver ore, from Prince's Location, Lake Superior; and smelted silver from the same.

12 CHAUDIERRE MINING COMPANY, *Quebec.*

Specimens of native gold, from the workings of the Company on the Touffe des Pins, seignory of Rigaud Vaudreuil Beauce.

13 CLAUSSEN, CHEVALIER, *London.*

Labradorite, from Labradore, &c.

14 HARWOOD, Hon. —, *Vaudreuil.*

Specimens of black-lead from Grenville.

15 BOUDOIN & LEBRE, *Vaudreuil.*

Specimens of white quartzose sandstone, such as is used in the manufacture of glass at Vaudreuil.

16 SEER, L. M., *St. Eustache.*

Specimens of iron ochre.

17 LA BARRE, D. G., *Point du Lac.*

Specimens of iron ochre.

18 HALL, J., *Melbourne.*

Specimens of iron ochre, from Durham; and roofing slates, from Kingsey.

18A HERBERT, JOHN W., *Montreal.*

Indian dress; a boudoir; pianoforte. Case of type.

[This dress is made of cloth and ribbon cut with scissors, and sewn on with ravellings of the same material—a very difficult process. The dress consists of petticoat, jacket, and leggings, and is the costume of the chief's daughter of the Ojibbeway nation. It was entirely wrought by hand, in imitation of porcupine-work; it is all of purely Indian design and pattern. It was made and sent for exhibition by Mrs. J. H. McVey, of Pottton, eastern township of Canada, who is the daughter of Charlotte Mono-nonce Kata-wa-beday, late hereditary chief of that nation, and the late Charles Oake Ernatering, Esq., of Montreal.]

The pianoforte, of six and three-quarter octave, compass from C to G, is manufactured of woods, the growth and produce of Canada, under the superintendence of the exhibitor, an Englishman of twenty-three years' residence in the city of Montreal, by workmen who acquired the principal knowledge of their trade in the manufactory of the exhibitor, whose attention to the construction of pianofortes to stand the climate of Canada, was first caused by observing that European instruments generally were unsuited to the temperature. The instrument now exhibited, both in wood and manufacture, is found, by experience, best adapted to the climate. In forwarding it, the exhibitor's object is not so much with the view of competing with countries whose facilities for manufacturing pianofortes must be admitted to be very superior to a new country like Canada, but to show the rapid improvement of the colony, and its capabilities of manufacturing what is suited to the demands of its inhabitants; and also to direct the attention of European manufacturers of these instruments to woods, the growth and produce of Canada, suitable for such purposes. The case is made of free grain black walnut-tree, veneered with crotch of the same wood; the keys are of bass-wood, the top and bottom blocks of hard Canadian maple, sounding board of Canadian spruce, which the exhibitor, by experience, is enabled confidently to state is stronger grained and superior for sound to the European wood so generally in use. The ornamental carvings are emblematical of Canada.]

19 CARON, E., *St. Ann, Montmorency.*
Specimens of iron ochre.

19A RAHN, C., *Toronto.*
Specimens of dentistry.

20 QUIGLEY, M., *Frampton.*
Specimens of slates.

21 DUBERGER, G., *Murray Bay.*
Specimens of iron ochre, from Ibberville, county of Saguenay.

22 KELLY, R. W., *Gaspé.*
Specimens of iron ochre and shell marl.

23 YEOMANS, ASA, *Belleville.*
Specimens of shell marl.

24 DE LESDERNIERES, P. T. C., *Vaudreuil.*
Specimens of shell marl.

25 BOSTON, Mr. Sheriff, *Montreal.*
Specimens of shell marl.

26 BOUTILLIER, Dr., *St. Hyacinthe.*
Samples of peat.

27 LOGAN, J., *Montreal.*
Barrel of fall wheat.

28 ALLAN, JOHN, *Long Point.*
Three barrels of wheat.

29 WEESE, W. F., *Ameliasburgh.*
Three barrels of spring wheat.

30 DESJARDINS, P., *Terrebonne.*
Three barrels of spring wheat.

31 LAURENT, D., *Varennes.*
Three barrels of spring wheat.

32 DRUMMOND, JOHN, *Petite Côte.*
Three barrels of spring wheat.

33 PROVINCIAL AGRICULTURAL ASSOCIATION,
Canada West.
Three barrels of fall wheat.

34 GRAHAM, J., *Sydney.*
Three barrels of fall wheat.

35 PROVINCIAL AGRICULTURAL ASSOCIATION,
Canada West.
Three barrels of fall wheat, raised by Mr. Christie, c
Dumfries, Canada West.

36 TITTEMORE, G.
Barrel of oats.

37 MUIR, A., *Hinchinbrooks.*
Barrel of oats.

38 WATTS, R. M., *Grantham.*
Barrel of oats.

39 BOA, WILLIAM, *St. Laurent.*
Barrel of peas.

40 LIMOGES, D., *Terrebonne.*
Barrel of peas.

41 JONES, D., *Sydney.*
Barrel of peas.

42 LA MERE, Madame, *Montreal.*
Barrel of beans.

43 FISHER, JAMES, *Rivière du Prairie.*
Barrel of horse-beans.

44 BRIEN, J., *St. Martin's.*
Barrel of yellow beans.

45 FOURNIE, C., *Longueuil.*
Barrel of beans.

46 BOA, WILLIAM, *St. Laurent.*
Barrel of barley.

47 DESJARDINS, P., *St. Rose.*
Barrel of buck-wheat.

48 SIMPSON, J., & Co., *Bowmanville.*
Barrel of flour.

49 LINGHAM, THOMAS, *Thurlow.*
Two barrels of flour.

50 TALEY, V. P., *Thurlow.*
Barrel of flour.

51 SQUAIR, R., *Bowmanville.*
Two barrels of oatmeal.

52 FRENHOLM, E., *Kingsy, E. T.*
Barrel of buckwheat flour.

53 CANIFF, F. & T., *Thurlow.*
Barrel of buckwheat flour.

54 TRENHOLM, E., *Kingsy, E.*
Barrel of Indian meal.

- 55 **RICHER, A., St. Laurent.**
Barrel of Indian meal; ship-biscuit; crackers; Bologna sausages; Fletcher's candy; smoked hams; beef tongues, &c.

[The agriculture of the Canadas is greatly influenced by the climate, and is necessarily of a peculiar character. During one-half of the year, the surface of the country is covered with snow and ice, and thus remains totally unproductive. The farmer is consequently constrained to select such plants, or varieties of plants, for his cultivation, as will perfect their growth in the brief summer of the country.]

When the ice departs, at about the end of April, vegetation commences, and proceeds with a rapidity unknown in our climate. In Upper Canada the seasons are not so severe as in Lower Canada, or the provinces of Nova Scotia and New Brunswick, and the spring sets in about a month earlier. The soil is also of a more fertile character; wheat, and indeed all the cereals, are produced in good quality, and in great abundance. The agricultural produce, however, of these colonies, is generally inferior in quality to that of more favoured climates, and the wheat being nearly all spring sown, does not command so high a rate in the markets.—J. W.]

- 56 **SHAW, A., Toronto.**
Specimens of corn in the ear.
- 57 **LOGAN, J., Montreal.**
Specimens of corn in the ear.
- 58 **DESJARDINS, B., St. Rose.**
Barrel of flax seed.
- 59 **FISHER, JAMES, Rivière du Prairie.**
Specimens of Siberian oil-seed.
- 60 **UBARDEAU, S., St. Anne.**
Barrel of timothy seed (*Phleum pratense*).
- 61 **M'GINN, T., Montreal.**
Barrel of timothy seed.
- 62 **JEFFRIES, J., Burodan.**
Specimens of red clover seed and garden seeds.
- 63 **SHEPHERD, G., Montreal.**
Various samples of garden seed.
- 64 **SMITH, B., Stanstead.**
Bale of hops.
- 65 **PENNER, J., Lachine.**
Bale of hops.
- 66 **CENTRAL COMMISSION, Montreal.**
Samples of double refined and unrefined maple sugar.
- 67 **BALES, JOHN, York.**
Specimen of double refined maple sugar.
- 68 **PARKER, JOEL, Hatley.**
Specimen of maple sugar.
- 69 **FISHER, ARTHUR, Ascott.**
Specimen of maple sugar.
- 70 **BASTIEN, M., St. Rose.**
Specimens of flax.
- 71 **GRICE, F., Montreal.**
Specimens of hemp and seed.

- 72 **MACCULLOCH, Dr. J., Montreal.**
A fungus from the pine-tree, used in Canada as a tonic bitter. It is apparently a *plyporus* allied to the *P. Officinalis* of the *Materia Medica*.

- 73 **LEVY, JOHN, Montreal.**
Roll of tobacco.

- 74 **EGAN, JOHN, Ottawa.**
Plank of bird's-eye maple (*Acer saccharinum*).

[The curled maple, so much resembling satin-wood, and the bird's-eye maple, so well known as an ornamental material, is met with where the common or sugar maple grows, but in general more on rocky ground. Sometimes they occur disseminated in single trees, and sometimes in patches of fifty or more. They occasionally are large enough to yield veneers of two feet in width; but the tree of smaller dimensions, up to 14 and 18 inches, are preferable. The large trees have often an unfigured part down the centre.]

- 75 **REED & MEAKINS, Montreal.**

Planks of birch, cherry, pine, bird's-eye and curled maples, and butternut.

- 76 **PARISAU, J., St. Martin.**
Plank of chestnut.

- 77 **PARISAU, F., St. Martin.**
Planks of soft maple and beech.

[The soft or sugar maple is not used to great extent in any manufacture, from being generally saved by the proprietors of the land for its yield of the material from which it takes its name. Hard maple is extensively used in the country for the manufacture of the best kinds of common furniture, and with black and red birch which are serviceable for the same purpose, is largely exported to the United States for similar objects. These three woods, also with beech, constitute the chief domestic fuel of Canada.]

Beech, in addition to its use as a fuel, affords a material for the manufacture of pyroligneous acid; and several establishments for its manufacture have lately been erected in the country. All the species of maple, birch, and beech, are spread over extensive areas in all parts of the province, and their presence is considered an undoubted mark of a good and fruitful soil.

The butternut-tree is a sign of good dry land; and it grows frequently to a height of 12 feet. It forms one of the best materials for veneering in cabinet-work, for which it is much used, being liable to neither warp nor crack. When properly finished and stained, articles made of it can scarcely be distinguished from mahogany.]

- 78 **DAVIS, J., Simcoe, Canada West.**
Plank of black walnut crotch.

- 79 **HENSON, J., Dawn.**
Black walnut plank.
Indian corn in the ear.

- 80 **CENTRAL COMMISSION, Montreal.**
Ship-building crooks and futtocks.

Planks and blocks—of birch; red rock elm; butternut; walnut and birch; birch and pine; bird's-eye maple; white oak; black walnut and pine; iron-wood; bass-wood and maple; soft and hard maple.

Planks—of birch; ash; black walnut; curled ash; bass-wood; butternut; pine; tamarack; spruce; oak, &c.

[The following description of the tree from which one

of these planks—that of black walnut—was cut, appeared in a local paper of the colony :—

"The first plank is 6 feet long and 3 feet 3 inches wide, perfect in every respect; the second plank is 4 feet long, 3½ feet wide. The length is 2 feet less than that required by the regulations: this, however, was unavoidable, for the piece has been cut to its present size for some time. The whole groundwork of this plank is a beautiful curl, traversed in every direction by large veins, which give it a very splendid appearance. The third is a veneer mounted, 4 feet long and 15 inches wide, sawn by hand from the same tree. The fourth are two magnificent crotches 5 feet long and nearly 3 feet wide. These, I am confident, would favourably compare with anything of the kind in the world.

"The colossal tree, the largest I think in this country, from which these specimens were obtained, stood in the valley of the Nanticoke, in the township of Walpole. The incidents connected with felling it and getting it into the mill are interesting. It was, I believe, in the winter of 1847, Mr. Fisher commenced operations by constructing a *shanty* for his accommodation while felling the tree and cutting it into logs. It appears almost incredible, but it is certainly the fact, that three men were busily employed a fortnight before the task was completed. The attack upon this giant of the wood was commenced about 10 o'clock A.M. by three first-rate axemen, who continued chopping that day and the next day till nearly night.

"I visited the spot shortly after: the place presented the appearance of a small windfall, so great was the quantity of timber which this huge tree crushed down in its fall. I took the dimensions of it, and if I remember correctly, they were as follow:—circumference at the ground 87 feet; 3 feet from the ground 28 feet: from this the trunk rose, tapering very little, to the height of 61 feet, when it divided into two trunks, the one nearly 6 feet in diameter, the other about 5 feet. These branches stretched up to an enormous height, reaching far above the humble trees of the forest. I could have no idea of the age of this tree, but from the smallness of the annual growths, particularly the latter ones, which were not distinguishable, I concluded it must be very old—perhaps two or three thousand years, and yet it evinced no symptoms of decay; there was not even the slightest hollow in the trunk. There were twenty-three logs in the tree, which made about 10,000 feet of timber: they would have made a much larger quantity; but, on account of the great size of some of them, they had to be hewn down considerably before they could be sawed."

The woods of Canada are various, and some of them constitute very important articles in the commerce of the country. Among these are white pine and red pine.

The valley of the Ottawa is one of the great sources of these two species. The quantity that comes down that river is very large. The greater value of the red pine enables the lumberers to bring it from greater distances than the other, at the head of Lake Michigan; and the highest point on the Ottawa, at which it has been felled for commercial purposes, is 600 miles above Quebec, the shipping port. From this distance it requires two full months to convey the timber to Quebec; and any accident creating delay would keep it through the winter on the voyage. The highest point from which white pine is brought is 150 miles short of the other; and for the purposes of the voyage, both species are formed into enormous rafts, some of which may have a superficies of 80,000 feet. To pass down rapids it is often necessary to break up the raft into

cribs of about 10 logs each; and to obviate the difficulties of cascades, slides are constructed in many parts of the river. The largest white pine-trees of the Ottawa are used for masts, and are of sufficient measure to give planks of five feet in breadth, free from sap. The largest plank of this species is from the River Chaudière, and it measures 12 feet long by 3 feet wide, and 3 inches thick. The largest red pine-tree will give logs of about 18 inches square and 40 feet long.

White oak is another of the important commercial woods of Canada, and the chief growth is in the western part of the province. It is used in the province and elsewhere for ship-building purposes; and a form in which it is largely exported is that of staves for barrels and puncheons. One of the planks of this species sent to the Exhibition measures 26 inches in breadth.

Black walnut is a wood affording ornamented material for furniture and house-building, and is much used in Canada and the United States. The chief growth is in the western part of the province, from which it is imported largely to the United States, and its quantity is inexhaustible. For ornamental purposes, it is the crutch, at the junction of a branch with the parent stem, that is used, as in other parts the grain is straight.

Examples of the great beauty of the wood may be seen in the various articles of furniture which have been sent to the Exhibition.

The tamarisk-tree yields good material for ship-building purposes, being particularly serviceable for knees and ribs: a fine specimen of a knee is exhibited in the Trophy in the centre of the Building.

The bass or white-wood tree is also a mark of the best quality of land, and it is to be found in abundance in both parts of the province. It is much used in the panels of railroad cars, carriages, and sleighs; and for such purposes it is there considered preferable to mahogany. It is much used in the manufacture of pianos, and for the interior of cabinet-work, as well as for various domestic objects in the dairy and kitchen.

The cedar-tree, which grows to great heights, yields an excellent material for railroad sleepers, and all purposes where exclusion from the atmosphere is required. Under ground it will last for centuries. It grows always in swampy land.

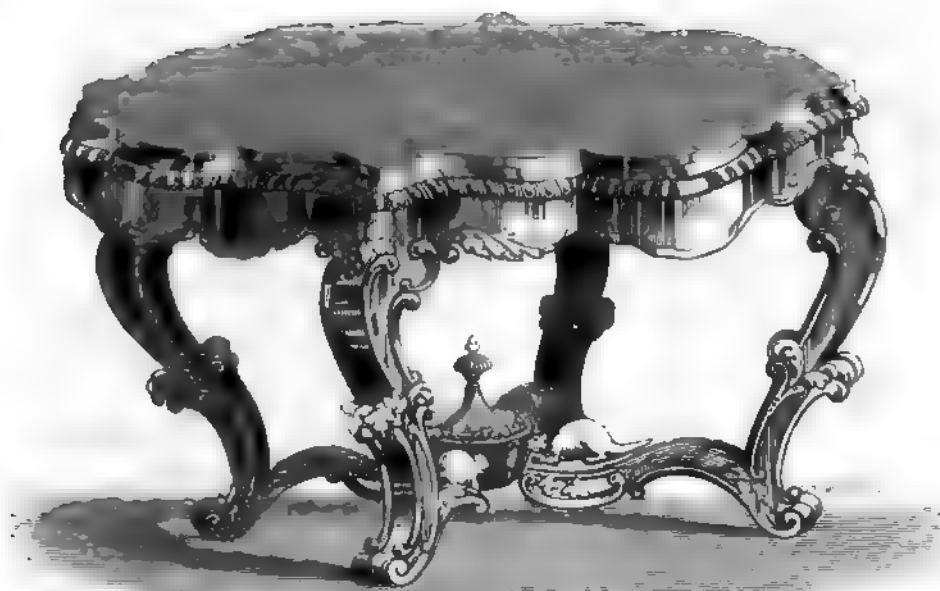
Cherry-wood, like maple and beech, is used for common furniture.

White spruce is exclusively used for the construction of dwelling-houses, and being closer in the grain, and more durable than most soft woods, it is employed for plank roads. It forms a considerable branch of trade, and is largely exported both to Europe and the United States. It grows in swampy ground, and the tree sometimes attains a great height, enabling it to be used for masts and spars.

The hickory-tree is scattered through most parts of the province, and forms an ornamental tree. The wood is very tough and straight grained. It is in consequence much used for handspikes, the handles of axes, of grain cradles, and various agricultural implements, and all others where strength is required to be combined with slowness. In the form of handspikes it is an article of export to Great Britain. Samples of it may be seen in the handles of the agricultural implements which have been sent to the Exhibition.]

81 CENTRAL COMMISSION, *Montreal*.
Specimens of maple veneer. Cross of oak veneer, and black walnut veneer.

- 82 BRAINERD, O. N., *Hamilton, Canada West.*
Corn-whips and dusters.
- 83 BRAINERD, O. M., *Hamilton.*
Corn-brooms.
- 84 NELSON & BUTTERS, *Montreal.*
Corn-brooms and whisps.
- 85 WEESE, W. F., *Ameliasburgh.*
A churn.
- 86 BAILEY, J., *Sherbrooke.*
Several pails.
- 87 DODD, ROBERT S., *Ayr.*
A tub.
- 88 SKINNER & M'CULLOCH, *Brookville.*
Several pronged hay-forks and manure-forks; scythe snaths.
- 89 GLASSFORD, —, *Brookville.*
A grain cradle.
- 90 SKINNER & M'CULLOCH, *Brookville.*
Grain-cradles.
- 91 HULBERT, SAMUEL, *Presscott.*
A plough.
- 92 FLECK, A., *Montreal.*
A light plough.
- 93 CENTRAL COMMISSION, *Montreal.*
A turnip cutter.
- 94 ALLOS, J., *Montreal.*
Specimens of calf upper and harness leather; tanning materials.
- 95 McLEAN & CUMMINGS, *Chippewa.*
Sides of sole leather.
- 96 MURRAY, H., *Montreal.*
Calf skins and sides of upper leather.
- 97 TEONGATHASEA, P., *Quebec.*
Specimen of moose skin.
- 98 TOURANGEAN, P.
Specimen of tanned moose hide.
- 99 THOMPSON, THOS., *Three Rivers.*
Pair of moose horns (*Alus Americana*).
- 100 ALLON, J., *Montreal.*
Tanning materials.
- 101 HOLWELL, —, *Quebec.*
A duplex safety rein.
- 102 DEAN, R., *Montreal.*
A patent leather travelling trunk.
- 103 BELL, P. W., *St. Catherine.*
An Indian saddle.
[Used by the natives in the western country when engaged in buffalo-hunting.]
- 104 WARDLE, M., *Montreal.*
Shoe-lasts.
- 105 M'GILLAN & SULLIVAN, *Hamilton.*
Hunting-saddle.
- 107 HENDERSON, J., *Montreal.*
Bear, wolf, and fox skin sleigh robes. These costly and superb articles of out-door covering or dress are worn by the upper classes of Canadians when travelling, during the winter, in their open carriages or sleighs.
- 109 TETU, C. A., *Quebec.*
Dressed porpoise-skin, and whale-skin leather.
[This is beginning to be much used in place of leather, for boots and shoes; it is softer, and as durable.]
- 110 BARBEAU, J., *Quebec.*
Fishing-boots of deer-skin leather, with whalebone stiffeners.
- 111 DANGERFIELD, —, *Montreal.*
Pair of ladies' shoes.
- 112 CENTRAL COMMISSION, *Montreal.*
Long and short Canadian boots.
- 113 MORRIS, R., *Montreal.*
Set of double sleigh-harness.
[This is intended for a double sleigh, showing the style in which the light Canadian horses are caparisoned when out on a sleighing excursion.]
- 114 MORRIS, JAMES, *Montreal.*
A black walnut bedstead.
- 115 PATERSON, G., *Dundas.*
Blankets and assortments of cloths.
- 115A REED & MEAKINS, *Montreal.*
Chairs, sofas, chiffonnière, and black walnut centre-table.
[The set of six chairs are carved in the style of the 14th century: the coverings are worked by the ladies of Montreal, who intend them as a present for Her Majesty. The sofa and chiffonnière are in the same style; the latter has the arms of the city of Montreal carved at the back.]
- 116 LAFLAMME, M. A., *Montreal.*
Oil-cloth patterns; floor and table oil-cloth.
- 117 RAMSAY & McARTHUR, *Montreal.*
Painted mahogany table; imitation oak table; marble table.
- 118 HAMMOND, R., *Montreal.*
A stone centre-table.
[The material forming this table is the limestone of Montreal. Polished in a similar manner, it is much used for chimney-pieces and other ornamental parts in architecture. It is the same stone as that of which the best edifices in the city are built.]
- 119 DUNN, W., *Quebec.*
Embroidered chairs.
[The seats of these chairs are embroidered in silk on leather.]
- 120 REDHEAD, THOMAS, *Montreal.*
Black walnut office and drawing-room chairs.
- 121 ALLAN, WILLIAM, *Montreal.*
Drawing-room chair.



Hiltons' Walnut Centre and Pier Table.

123 HILTON, J. & W., *Montreal*.

Walnut centre and pier tables. (One of these tables is represented in the above engraving.)

Spring-back sewing-chair.

Various chairs. Two tête-à-têtes.

[This furniture is manufactured of the finest black walnut which Canada produces; it is delicately carved, and the seats and backs are covered with gold and crimson damask.]

124 MACFARLANE, A., *Côte des Neiges*.

Samples of glue.

125 PRENDERGAST, J., *Montreal*.

Samples of starch.

126 ROBE, J., *Montreal*.

Box of biscuits.

127 FLETCHER, JOHN, *Montreal*.

"Maiden hair" syrup. Raspberry vinegar.

128 BRUNSDEN & SHIPTON, *St. Hilaire*.

Potato starch.

Preserved potatoes, for ships' stores, especially adapted for long voyages.

129 PARISAU, JOSEPH, *St. Martin*.

Beeswax.

130 LEVEY, J., *Montreal*.

Samples of snuff.

131 LYNAM, HENRY, *Montreal*.

Samples of honey.

132 PENNER, J., *Lachine*.

Bottled cider.

133 GILLESPIE & Co., *Montreal*.

A barrel of vinegar, made from wood

134 STEWART, W., *Toronto*.

Set of single sleigh harness. Made of patent leather, lined throughout with red morocco, and exhibiting a newly-constructed self-adjusting pad.

Barrel of ship biscuits.

135 FITTS, ARBA, *Montreal*.

Fancy biscuits.

136 FLETCHER, JOHN, *Montreal*.

Samples of candy.

137 BEAN, SIMON HARTLEY, *Canada East*.

Woollen counterpane; table-cloths.

138 DIXON, T., *Toronto*.

Woollen counterpane.

139 GAMBLE, W., *Milton Mills*.

Horse blanket; pieces of carpeting; assortment of blankets.

140 BARBER, Messrs., *Esquimaux*.

Samples of carpeting.

141 FORTIER, MOSES, *St. David*.

Piece of linen.

142 BEAN, SIMON, *E. T.*

Table-cloths.

143 WILLETT, Messrs., *Chambly*.

Specimen of grey cloth.

144 MCKAY & Co., *New Edinburgh*.

Specimens of grey cloth; dark and brown satinette of various kinds; silk sash.

145 HENDERSON, H., *Montreal*.

Embroidered table-cloth.

146 PATTERSON, J., *Dundas Mills*.

Six pairs of blankets. An assortment of woollen cloths.

147 WALLACE, A., *Montreal*.

Bench and moulding planes.

- 148 SCOTT & GLASSFORD, *Montreal*.
A chopping-axe.
- 149 SHAW, SAMUEL, *Toronto*.
Chopping-axes; broad axes; coopers' tools; framing chisels; and hunting-axe.
- 150 LEAVITT, G., *Dundas*.
Chopping and broad axes.
- 150A RICE, W. H., *Montreal*.
Wire-cloth.
- 151 CHENEY, G. H., *Toronto*.
A cooking-stove.
- 151A LADD, C. P., *Montreal*.
Patent balance-scales to weigh 20 cwt.; various chopping-axes.
- 152 HOLLAND & DUNN, *Montreal*.
Cut nails, assorted.
- 154 MOLSON, GEO. E., *Montreal*.
A church bell.
- 155 CHENEY, G. H., *Toronto*.
A sad-iron plate; case of types.
- 156 CHENEY, G. H., *Toronto*.
A parlour stove.
- 157 PERRY, JAMES, *Montreal*.
A copying press.
- 158 GARTH, CHARLES, *Montreal*.
A steam-boat engine-gong.
[This gong is used by the vessels in Canada in the following manner:—the gong, with apparatus, is used in the engine-room, and wires are placed from the sliding-bars which work the hammer, to the wheel-house paddle-boxes, or to any other part of the vessel: to these brass pulls are attached. Thus the captain or pilot can, by giving one or more pulls, inform the engineer whether he wishes the engine started, stopped, reversed, &c.]
A brass double grease or oil cock, used for introducing grease or oil into the cylinder of steam-engines where high-pressure steam is used.
A steam-boiler gauge-cock of improved construction.
A 1-inch water-cock or valve. This water-cock is fast superseding all other kinds known in Canada.
- 159 CHENEY, G. H., *Toronto*.
Copper furniture for a stove.
- 160 BOYD, F. J., *Montreal*.
A cut rifle gun.
- 161 ASHFIELD, J., *Toronto*.
A cut rifle gun.
- 162 BARTRAM, A., *Montreal*.
A model cannon, &c.
- 163 DE MONTENAC, Madame, *Montreal*.
City arms.
- 164 FERGUSON, W., *Montreal*.
Flexible branch-pipes.
[Made of bands of leather fastened together with copper rivets. It is much used in Montreal instead of the ordinary stiff pipe.]
- 165 CLARKE, JAMES, *Montreal*.
Ship-blocks, of various sizes.

- 166 THREKELD, —, *Toronto*.
An assortment of whips.
- 167 WHEELER, THOMAS, *Toronto*.
An assortment of brushes.
- 168 HENDERSON, —, *Quebec*.
Coils of rope.
- 169 SPOONER, A., *Montreal*.
Box of twine, assorted.
- 170 DIXON, THOMAS, *Toronto*.
Specimens of cordage.
- 171 CENTRAL COMMISSION, *Montreal*.
A bark canoe. (This canoe is represented in the accompanying Plate.)
[This canoe, made from the bark of the white birch, is one of the largest class of canoes used in the north-west country. Previously to its being forwarded to England, it made a voyage in the spring of last year of upwards of 3,000 miles, with a crew of 20 men and their stock of necessaries and provisions. Being exceedingly light, the crews are enabled to carry these canoes when it is essential to avoid the falls and rapids; and, for months together, they form the homes of the hardy and daring voyagers during their transit to and from the Far West.]
- 172 ONDAGAHOUT, P.
Pair of snow-shoes; also mocassins.
[These snow-shoes are worn by all classes when traveling in the snow. They are used in chase of the deer and other game, by the Indians, and enable the hunter in his eager pursuit to travel over the snow at the rate of seven, and even occasionally at ten, miles an hour. Racing in them is a favourite amusement of both Canadians and Indians during the winter months; and so indispensable are they, that, without these shoes, the poorer inhabitants would be confined in stormy weather to their homes.]
- 173 BELL, P. W., *St. Catherine*.
Indian dress, viz., coat, pair of leggings, cap, gun-case, knife-case, bracelet, and pair of small belts.
[Formed of dressed deerskin, ornamented with dyed moose hair and beads. This dress is that of an Indian chief, made by a squaw of the Mohawk nation.]
- 174 HENDERSON, —, *Montreal*.
Embroidered slippers, cigar-cases, purses, and fan.
[Made by a tribe of the Iroquois Indians resident at Caughnawaga, in the neighbourhood of Montreal.]
- 175 ROCHELEAU, HELEN, *Three Rivers*.
Bark box and fan.
- 176 CAMPBELL, Major, *St. Hilaire*.
Bark tray and box.
[Made of the bark of the white birch, ornamented with dyed moose hair and beads.]
- 177 INDIANS OF LORETTE.
Indian curiosities.
- 178 M'LEAN & WRIGHT, *Montreal*.
Single sleigh, with pole and shafts. This sleigh is represented in the following cut.



M'Lean & Knight's Single Sleigh.

[This sleigh is drawn generally by four horses. Sleighing forms the chief and most highly-relished amusement of the Canadians during winter. To follow it all business is suspended; and certainly a more invigorating exercise can scarcely be imagined. Seated in one of these light and elegant carriages, wrapped in the warmest furs, ornamented with the gayest colours, and tempted abroad by a sky that equals that of Italy in brilliancy, the Canadian thoroughly enjoys himself, even though the thermometer sometimes be 80 degrees below the freezing point. It is no uncommon thing to see a score or thirty of these sleighs at one time careering over the frozen snow in the "fashionable drives."]

- 179 O'MARA, M., *Montreal*.
A double sleigh.
- 180 LAURIN, J. J., *Quebec*.
A single sleigh. A light carriage and wheels.
- 181 PERRY, G. J., *Montreal*.
Fire-engine and hose reel.

[The mechanical construction of this fire-engine differs entirely from the engines commonly used in England. Instead of working "broadside," or from end to end, this works from the ends. The usual stroke of an English engine is 8 inches: this gives one of 16 inches, while it may be worked with fewer hands, with greater facility, and consequently with less fatigue to the firemen, from 20 to 30 of whom are required to keep it in full working play; but by a simple and ingeniously contrived stuffing-box its powers may be regulated according to the number of men employed. The present engine lifts its supply of water 33 feet, playing from 50 feet of hose, one-inch bore 40 feet, and from 170 feet to 180 feet in height; or from two streams it will throw each 160 feet.]

(This engine is represented in the Plate 48.)

- 182 JOSEPH, J. G., *Toronto*.
A theodolite and stand.
- 183 McPHERSON, J. & SONS, *Montreal*.
A clarinet and a corneopon.
- 185 HIGGINS, PATRICK H.
Violin and case, clarinet, and piccolo piano.
- 186 PARKES BROTHERS, *Toronto*.
Various specimens of turning.

- 187 HENDERSON, —, *Montreal*.
Case of pipes, assorted.
- 188 MATTHEWS, O., *Montreal*.
A lithotype.
- 189 PALSGRAVE, J. T., *Montreal*.
Case of type.
- 190 MEYER, H., *Toronto*.
A lithographic drawing.
- 191 STARK & Co., *Montreal*.
Ornamental letter-press printing.
- 192 BUREAU & MARCOTTE, *Quebec*.
Specimens of plain and ornamental typography.
- 193 DICKINSON, C. M., *Montreal*.
Specimens of dentistry.
- 196 IRWIN, J., *Montreal*.
Travelling trunk.
- [Indian curiosities, made by the native Indians of Lorette, the remains of the Huron tribe, consisting of black beaver and skin tobacco-pouch, card case of cunhboo feet, an Indian stool formed of moose feet, ornamented with dyed porcupine-quills and moose hair.]
- 244 LEWIS, R., *Melbourne*.
Two model bridges.
- 301 CENTRAL COMMISSION, *Montreal*.
Ornamental stool, moose feet. Spring-back sofa. Walnut centre tables. Walnut pick table. Spring-back sewing-chair, *tête-à-tête*. Chiffonnière. Sofa. Rocking-chair. Ordinary chairs. Wooden snow-shovels.
- 324 MANN, A., *Montreal*.
Samples of mineral water.
- 326 NICOLSON, R., *Montreal*.
Barrel of beef.
- 329 MATTHEWSON & SON, *Montreal*.
Cases of fancy soaps, common soaps, and candles.
- 331 ADAMS, W. H. F., *Montreal*.
Etroff du pays suit of clothes. The capote lined with Canada tweed, the buttons of bird's-eye maple: the whole intended to show a full suit of Canadian *habitan's* dress. A fancy double coat.
- 333A STEWART, —, *Toronto*.
Set of single sleigh-harness, lined with red morocco, showing a self-adjusting pad.
- 334 MORRIS, B., *Montreal*.
Military helmet. Proposed helmet of the Rangers, made for Sir James Alexander, A.D.C.; sabre-proof, the crest being stuffed with deer's-hair, and a band of whale-bone passing across the head: sun-proof, and ventilated. Weight 18 oz.
- 339 COMMISSIONERS, *Quebec*.
Straw hats.
- 340 SAYAGE, G., & SON, *Montreal*.
A silver embossed tea-kettle, and engraved spectacle case. Dessert and tea spoons. Silver table-spoon and fork.
- 341 LEGGATT, H., *Montreal*.
Gold cable-chain and hook. A filigree and topaz brooch. An amethyst and a sprig brooch.

A snake-pin, garnet and pearl. A diamond pin. Claw-pin, ruby. Various other pins, including topaz, ball, dove, and square-head rubies.

346 RODIER, P., *St. Hyacinthe*.

A model locomotive steam-engine, gong, &c.; single sleigh; light carriage; carriage-wheels.

351 DUNCAN, J., *Montreal*.

Designs for coinage.
Ornamental printing.

353 WHEELER, THOMAS, *Toronto*.

Medallion, in gutta percha, of the Earl of Elgin, Governor-General of Canada, and the die from which the same was struck.

355 ASHTON, J. P., *St. Laurent*.

Specimens of the *Cottonia* plant, or wild cotton.

[This plant grows in the greatest luxuriance over almost the entire country: it has been applied successfully in Canada to the manufacture of hats, being substituted for felt; and it is generally thought, that, were it to engage the attention of the maker of English textile fabrics, he might use it to a profitable purpose.]

NEW BRUNSWICK.

SOUTH AREA, Q. 32.

THIS colony has sent a miscellaneous collection of raw and manufactured articles for exhibition. The timber trade of New Brunswick is represented by a series of woods; the mineral wealth by some specimens as yet undetermined, and others of iron, and probably other metalliferous ores, in addition to grindstones and stones for hones. Specimens of coal and plumbago are also sent. The agricultural produce sent consists of wheat, barley, oats, beans, &c. There are also specimens of preserved food. It is to be regretted that a fuller amount of information was not supplied with these articles, as the capabilities of the colony might have been more adequately exhibited in the Catalogue of its contributions.—R. E.

1 GREY, The Dowager Lady.

A canoe, with three figures, representing Joseph Jamar, the chief of the Melicite tribe of Indians, his squaw and her popoose, in their state costume. Sent by the Misses Close, two ladies who reside in the vicinity of the tribe.

2 GIBBS, BRIGHT, & Co., *Liverpool*—Producers.

A figure-head of an Indian chief.

3 GOULD, N., 4 *Tavistock Square, London*—Importer.

Specimens of jet coal, or asphalt, recently discovered on the banks of the river Peticodiac, Albert County, New Brunswick, and not hitherto been discovered in any other part of British America. This coal is said to produce gas of the purest colour, and in greater quantity than any other coal hitherto used for the purpose. (The property of Edward Allison, Esq., of St. John's.)

Lump of plumbago.

4 McRAE, WILLIAM.

Bird's-eye maple.

5 McKILLOP, A.

Bird's-eye maple.
Curly maple (veneer).

6 McRAE, WILLIAM.

Curly maple.

7 MACKIE, ALEXANDER.

Black birch.
Tausoganop stones, for razor hones.

8 McRAE, WILLIAM.

Manganese (from Nassau).

9 FRASER, WILLIAM J.

Mineral (from Bay Cheleaur).

10 HUTCHISON, RICHARD.

Iron ore. Mineral.

11 McCULLY, CALEB.

Mineral (from Tabusintac).

12 BLACKVILLE.

White bald wheat.

13 WYSE, JOHN.

White bald wheat, 66 lbs. per bushel.

14 BLACKVILLE.

White bald wheat.
White bald wheat, 66 lbs. per bushel.

15 WYSE, JOHN.

Red bald wheat, 67 lbs. per bushel.

16 BLACKVILLE.

White oats.

17 WYSE, JOHN.

White oats.

18 McDERMOT, FINLAY.

Barley, 56 lbs. per bushel.

19 BROPHY, PATRICK.

Black oats, 41 lbs. per bushel.

20 WYSE, JOHN.

Broad beans.

21 SEARLE, MICHAEL.

Black runners. Speckled beans.

22 WYSE, JOHN.

White beans.

Two copies of Professor Johnson's "Report of the Agricultural Capabilities of New Brunswick."
Sample of Indian corn.

23

Bay or candleberry candles. Iron ore.

Cornelian stone. Pair of mittens.

Candleberry wax.

Sample of grindstone, from the New Baudon Quarry,
Bay Cheleaur.

24 FRASER, WILLIAM J.

Two canisters of preserved salmon.

Two canisters of preserved lobsters.

One canister of fresh cod-fish.

24 HUTCHISON, RICHARD.

Sample of peas, second growth, 1849.

26 SEARLE, MICHAEL.

Cabbage seed. Carrot seed.

Parsley seed. Onion seed.

27 PORTER, J.

Bushel of beans, 68 lbs. per bushel.

- 28 **GOODFELLOW, ALEXANDER.**
 Sample of white bald wheat.
 Green peas, 68 lbs. per bushel.
 Bushel of white beans, 68 lbs. per bushel.
 Box containing bay or candleberry bush and sea-weed coral.
 Sample of white bald wheat.

- 29 **CHALMERS, JOHN.**
 Samples of barley, wheat, and oats.

NOVA SCOTIA.

SOUTH AREA, P. 30 TO 32.

THE mineral wealth of Nova Scotia forms the chief subject of illustration in this collection; and the objects exhibited prove the large extent and importance of the sources of iron of the best kind recently made available in that country. Charcoal iron is produced in considerable quantities, and is adapted for the manufacture of excellent steel. In addition to the metalliferous minerals, several others are exhibited of interest to the geologist and naturalist. The collection of stuffed birds and animals is also interesting, and is accompanied by specimens of native manufactures of the usual simple description.—R. E.

GOULD, N., 4 Tavistock Square.

Bitumen.

ACADIAN IRON MINING ASSOCIATION.

Iron, steel, tin plates, wire, cutlery, bars of iron and steel polished, pig and cast iron.

ARCHIBALD, CHARLES DICKSON, F.R.S., 15 Portland Place—Proprietor.

Iron ores from the province of Nova Scotia, embracing magnetic ores, specular, spathose, micaceous, ologistic, fossiliferous, hæmatites, hydrates, ochres, &c.

[A band of fossiliferous iron extends along the edges of the Nova Scotian coal-field from a few miles south of Pictou to Annapolis: this is usually in the state of peroxide. Ironstone balls, the argillaceous carbonate of iron, are also found interstratified with the numerous thin bands of coal of this district.—R. II.]

Manganese—peroxide, black, grey, crystallized, and acicular.

Copper ores—carbonate, oxide.

Barytes—sulphate, crystallized.

Marble—statuary, veined, &c.

Ochres—red, yellow.

Ankerite—a ferruginous variety of limestone containing spathose iron ore.

Fossils.

Various building materials.

[The iron ores of Nova Scotia are of great richness and purity. Several of the specimens above mentioned yield upwards of 70 per cent., and are entirely free from sulphur and all other impurities. They are, moreover, very abundant, and situated in the midst of vast native forests, capable of supplying charcoal to any extent, at a very cheap rate. The principal mines are within four or five miles of ship navigation; and in juxtaposition with the ores are found coal, lime, marble, freestone, fine clay, timber, water-power, and every requisite for the manufacture of iron on a large scale. The great value of these ores consists in their being essentially of a steely nature. Not only does the iron produce steel of first-rate excellence, but large quantities of steel of very superior quality have been made direct from the ores. These mines have

been opened, and a small establishment of works put in operation during the last year. The mode of reduction adopted is what is called the Catalan process, by means of which the ores are directly converted into bar iron, with charcoal fuel.]

Specimens to illustrate the proposition, "That the province of Nova Scotia is capable of supplying the whole British empire with steel and charcoal iron, equal to the best foreign articles, and at greatly reduced prices." All the enumerated articles are made from the iron and steel of Nova Scotia. Iron—cast and pig, grey, mottled, bar, rod, steel iron, horse-nail, &c., manufactured; turned specimens, polished bars, tin plate, wire, dies, &c. Steel—bars, polished, wire, &c. Manufactured articles—fenders, fire-irons, sword-blades, knives, scissors, surgical instruments, magnets, pistols, files, edge tools, razors, &c.

Working models of a steam-engine, and of a brick-making machine.

ARTICLES exhibited by the CENTRAL COMMITTEE, assigned to the care of Mr. C. D. ARCHIBALD, *Portland Place*. Agent—Mr. MACLEAN, *Lobby, Custom-house*.

Geological prints on clay. Specimens of freestone. Yellow and burnt ochre. Mineral paints. Coal. A fossil-tree. Shell, marl, and lime. Iron ore, and other mineral specimens.

Samples of cod-liver oil. Chemical preparations.

Maple-sugar in crystals; pulverized; and in syrup.

Samples of wheat grown by Indians; and grown by the farmers; weight 64 lbs. 11 oz. per bushel.

Sample of maple-sugar. Preserved fish. Digby herrings.

Barley, wheat, straw, and oats. Indian corn. Beef and ham, 90 lbs. Bacon, &c.

Specimens of woods: Curled maple, bird's-eye maple, veneered birch, grey and white oak, and lepidodendron stem.

Young seal-skins.

Specimen of human bones (Indian).

Samples of hay-seed, moose heads, and horns; cariboo.

Collection of botanical specimens.

Specimens of preserved animals, birds, and insects. The birds stuffed by Mr. Andrew Downs, of Halifax.

Skins of wild cat (*Felis catus*); lynx (*Felis lynx*); red, cross, black, silver, and white fox (varieties of *Fulpes communis* and *Fulpes lagopus*); American hare (*Lepus Americanus*); martin (*Mustela marites*); minx (*Mustela lutreola*); raccoon (*Procyon lotor*); otter (*Lutra vulgaris*); beaver (*Castor Canadensis*); bear (*Ursus Americanus*); wolf (*Canis lupus*); weasel (*Mustela erminea*); squirrel (*Sciurus*); flying squirrel (*Pteromys volucella*); silver-grey fox, martin, musquash (*Nasua socialis*); raccoon, and cat-skin sleigh robes.

Two iron castings.

One Indian canoe and three paddles.

Sample of French home-spun grey, green, striped, and plaid cloth. Check home-spun, plaid cloth, and brown cloth.

Two shawls.

Quilts, blankets, woollen hearth-rugs, &c.

Woollen vest. Socks, assorted. Mitts, assorted.

Pairs of fine and coarse pegged boots.

Shoe-lasts. Snow-shoes with mooccasins.

Grass bonnets and hats. Down hat, muff, victorine, and cuffs.

An Indian dress, cradle, chairs, seats, mats, cigar cases, and other Indian work.

Map of Nova Scotia and hand-book. Book of music.

Piano, in case of bird's-eye maple.

Soap and candles. Eel-spear and fishing-rods.

Indian fan, reticule, hood, purse, and mooccasins.

Indian and negro bones and baskets.

Reticules of grass.

NEWFOUNDLAND.

SOUTH AREA, Q. 32.

THE cod-liver oil trade of Newfoundland has of late years undergone great extension, in consequence of the immense consumption of this drug for pulmonary and strumous disorders. The unquestionable instances of its successful employment give probability to the conjecture that the manufacture will receive still further increase. Cod-liver oil is used also by the preparers of leather. The inexhaustible cod fisheries off this country form in themselves a singular and interesting part of its natural history. The only contributions from Newfoundland are some samples of cod-liver oil.—R. E.

1 STABB, EWEN, *Liverpool Street, London*—Importer.

Samples of cod-liver oil, purified (of much efficacy in pulmonary complaints), from the manufactory of W. L. M'Kay, St. John's, Newfoundland.

BERMUDAS.

SOUTH AREA, R. 32.

THE contributions of the Bermudas are placed with those of other colonies on the south of the Western Nave. The collection from this remarkable group of islands is extremely small, and consists only of a few specimens of arrow-root and palmetto plait, and some miscellaneous objects. As arrow-root and the plait of the palmetto leaf are of importance to the commerce of those islands, they will be regarded with some degree of interest as associated with their prosperity.—R. E.

GRAY, —.

Specimens of arrow-root.

JACKSON, H. H. *Bermudas* Cabinet-maker.

Chest-board of remarkable workmanship, and exhibiting specimens of the Bermudas wood.

SPECIMENS OF NATURAL PRODUCTIONS.

Pumice-stone

Bermuda arrow-root.

Collection of marine productions.

Model of Bermuda sailing-boat.

Model of a hoop for a mast, for the boom to work in, instead of a "goose-neck."

Specimens of Bermuda palmetto plait.

[Arrow-root and palmetto plait form two important articles in the exports of this group of islands. The arrow-root is obtained from *Maranta arundinacea*, which is extensively cultivated in the islands, by first removing the scaly portions from the roots, and then rasping the latter and washing the powder. The fine powder obtained, after being properly dried, is packed in tins and other cases lined with paper, and exported. In 1845, it was estimated that 400,000 lbs were made in these islands, three-fourths of which were sent to England. Bermuda arrow-root is one of the most esteemed varieties. The palmetto plait is likely to come into extensive use in this country, and is exhibited by several in a preceding Class.]

JAMAICA.

SOUTH AREA, Q. 30.

JAMAICA is directly represented by only one exhibitor. The contribution consists of artificial flowers in imitation of the gorgeous productions of the Tropics. The material employed deserves mention. It is obtained from one of the Yuccas, plants which are members of the natural order *Liliaceæ*; and, being of tenacious fibre, are occasionally used in the manufacture of twine, rope, &c.—R. E.

NASH, Mrs., *Parish of Manchester*.

Ten varieties of tropical flowers, made from the fibre of the "Yucca" or "Dagger-plant."

BARBADOES.

SOUTH AREA, Q. 30.

A MOST complete collection of wax models has been sent from this island in illustration of tropical flowers, fruits, &c. To the naturalist, these models present a valuable opportunity for acquaintance of a more tangible character than is derivable from books, with the most valued of these productions. Among the specimens of natural produce are textile fibres, minerals, and medicinal substances, some of which are new and interesting. The sugar produced in the island is also represented by several specimens manufactured by different processes.—H. E.

MODELS AND SPECIMENS OF NATURAL PRODUCTIONS,

FRUITS, SPICES, &c.

Cactus (*Cereus trigonus*). Dunks (*Ziziphus jujuba*). Purple peppers (*Capicum purpureum*). Finger peppers (*Capicum purpureum*). Sea-side grapes (*Coccoloba uctifera*). Otabeite gooseberry (*Curca dactylocha*). Golden apple (*Spondias dulcis*). Pig plum (*Spondias dulcis*). Water lemon (*Passyflora laurifolia*). Rose apple (*Passyflora laurifolia*). Chili peppers (*Capicum*). Cherry peppers (*Capicum cerasiforme*). Cashew (*Anacardium occidentale*). Red bell pepper (*Capicum annum*). Green bonnet pepper (*Capicum tetragonum*). Yellow Carib pepper (*Capicum Caribæum*). Mango (*Mangifera indica*). Peach mango Jamaica plum. Red bonnet pepper (*Capicum tetragonum*). Star plums (*Chrysophyllum monospermum*). Green sugar apple (*Anona squamosa*). Purple sugar apple (*Anona squamosa*). Tamarinds. Cream-coloured peppers. Guavas. Green bell pepper (*Capicum annum*). Sapodilla (*Achras sapota*). Cacao (*Theobroma cacao*). Limes (*Citrus acida*). Star apple (*Chrysophyllum Cainito*). Red banana (*Musa sapientum*). Yellow banana (*Musa sapientum*). Avocado pear (*Persea gratissima*). Citron (*Citrus*). Pomegranate. Custard apple (*Anona reticulata*). Bread-fruit (*Artocarpus incisa*). Sour sop (*Anona muricata*). Green plantain (*Musa paradisiaca*). Yellow plantain (*Musa paradisiaca*). Papaw (*Carica Papaya*). Grape-fruit (*Citrus*). Sugar-cane (*Saccharum officinarum*).

Fibre of Spanish needles.

Common and Gadesden pan sugar.

Gadesden pan sugar, from Vauclose plantation.

The fibre of the Agave Americanus, and of the Agave vivipara, used in Central America for stuffing hammocks.

The "Tous les mois," and wax model of its flower.

Barbadoes cotton Aloes.

Plant of Spanish needles.

Bituminous coal.

Selenite. Limestone.

Nicker seeds, produced by the Guilandina Bonduce.

[These seeds are used as a remedy for dropsical affections, and are in great repute among the native practitioners of the island. They are sent to determine whether their virtue does not depend upon some alkaloidal principle.]

The mode of administering the "horse-nicker"—the vernacular name for the seeds—is to parch the kernel, and grind it; then to infuse it, like coffee, and give a wine-glassful or more two or three times a-day. It is thought that a concentrated form of the remedy would be very valuable as a tonic or diuretic.]

Specimens of transparent sugar-cane. Bourbon sugar-cane.

Blossoms of transparent and Bourbon sugar-cane. Persian or green seed cotton. The vine cotton. Cotton from Demerara. Common Barbadoes cotton. Chalk. Quartz. Petroleum, or green tar. The bulb of the "Tous les mois."

["Tous les mois" is a variety of arrow-root, produced by a species of *canna*.]

1 READ, ALFRED, Director, Datchett.

Basket of vegetables, roots, &c., modelled in wax, by Mr. and Mrs. Braithwaite, of Barbadoes.

Guinea corn (*Sorghum vulgare*). Pigeon peas (*Cajanus Indicus*). The Sugar-bean (*Phaseolus lunatus*). Moonshine bonavis (*Lathyrus leucocarpus*). Plantain (*Musa Paradisiaca*). Ginger (*Zingiber officinale*). Egg fruit (*Solanum melongena*). Arrow-root (*Maranta arundinacea*). Indian corn (*Zea mays*). Chrysothrine (*Sechium edule*). Cucumber, Moonshine (*Cucumis sativus*). Purple egg plant (*Solanum melongena*). Cabbage. Turnip. Carrot (*Daucus carota*). Green Indian corn (*Zea mays*). Roasting eddoes (*Arum macrorrhizum*). Cucumber (*Cucumis sativus*). Green egg plant (*Solanum melongena*). Lima bean (*Phaseolus perennis*). Turnip (*Brassica rapa*). Beet-root (*Beta vulgaris*). Pumpkin (*Cucurbita pepo*). White yam (*Dioscorea sativa*). Red potato (*Batatas edulis*). Scratching eddoes (*Caladium esculentum*). Cabbage (*Brassica oleracea*). Cassava (*Manihot utilissima*). Yellow potato (*Batata*). Bread-fruit (*Artocarpus incisa*). Red yam (*Dioscorea alata*). White potato (*Batata alba*). Madeira eddoes (*Caladium sagittifolium*). Squashes (*Cucurbita melopepo*). Bonna pepper (*Capicum angulosum*). Carb pepper (*Capicum*). Bell pepper (*Capicum annuum*).

2 ELWELL, HENRY, Birmingham and Barbadoes.

Vase of flowers and basket of fruit; manufactured for and imported by the exhibitor. Moulded in wax by Mr. and Mrs. Henry Braithwaite, of Barbadoes.

Flowers.

Flower fence, or Barbadoes pride (*Cesalpinia pulcherrima*). Yellow flower fence (*Cesalpinia floridus lutea*). Yellow jasmine (*Jasminum fruticosum*). Tous les mois (*Canna achirra*). St. Vincent blue (*Solanum Seaforthianum*). Murraya (*Murraya exotica*). Asclepias (*Asclepias*). Croton (*Crotonia palustris*). Citron blossom (*Citrus medica*). Plumbago, stone cold (*Plumbago*). Variegated hibiscus (*Hibiscus variegatus*). Yellow rose (*Rosa lutea*). Flesh-coloured oleander (*Nerium carneum*). Orange cordia (*Cordia fulva aurea*). Sea Island cotton (*Gossypium hirsutum*). Crimson rose (*Rosa cruenta*). Musk ochre (*Hibiscus abelmoschus*). Blue convolvulus (*Convolvulus major*). Water lemon blossom (*Passiflora laurifolia*). Pomegranate blossom (*Punica flore-pleno*). African lily (*Amaryllis Africana*). Hoya, or wax flower (*Hoya carnosa*). Austrian rose (*Rosa bracteata*). Common oleander (*Nerium oleander*). Wild French guava (*Caena occidentalis*). Scarlet cordia (*Cordia sebastiania*). Poplar (*Thespesia populnea*). White rose (*Rosa alba*). Queen of flowers (*Lagerstromia regina*). Gardinia (*Gardinia flore-pleno*). Orange jasmine (*Plumieria lutea*). Painted justicia (*Graptophyllum hortense*). Lignum vitae (*Guaiacum officinale*). Variegated jasmine (*Plumieria bicolor*). Sweet pea (*Lathyrus odoratus*). Trumpet flower (*Bignonia unguis*). Double red lily (*Amaryllis flore pleno*). Purple bignonia (*Bignonia purpurea*). Shell plant (*Alphania nutans*). White jasmine (*Plumieria*

alba). Blue vine (*Clitoria ternatea*). Barbadoes cotton (*Gossypium Barbadenae*). Madara heath (*Russelia juacca*). Changeable rose (*Hibiscus mutabilis*). Rose of Sharon (*Hibiscus flore-pleno*). Orange rose of Sharon (*Hibiscus flore-pleno luteus*). Petrea (*Petrea volubilis*). Allamanda (*Allamanda cathartica*). Verbena (*Verbenum*). Scarlet Brownia (*Brownia coccinea*). Red jessamine (*Plumieria rubra*).

Fruits.

Sugar-loaf pine-apple (*Ananassa sativa*). Variegated grape (*Vitis vinifera variegata*). Barbadoes cherry (*Malpighia glabra*). Barbadoes gooseberry (*Pefralis aculeata*). Common vine grape (*Vitis vinifera*). Barbadoes sea-side grape (*Coccoloba Barbadenensis*). Dunk (*Zizyphus jujuba*). Water lemon (*Passiflora laurifolia*). Lemon (*Citrus*). Common guava (*Psidium pomiferum*). Green star apple (*Chrysophyllum Jamaicense*). Gully, or hog plum (*Spondias lutea*). Tamarind (*Tamarindus Indica*). Bell pepper (*Capicum annuum*). Rose apple (*Jambosa Maluccensis*). Jamaica plum (*Spondias mombin*). Cocoa-pod (*Theobroma cacao*). Bourbon sugar-cane (*Saccharum Habitenae*). Carthus pear (*Cereus trigonus*). Purple avocado pear (*Persea gratissima*). Red cashew (*Anacardium occidentale*). Ribbon sugar-cane (*Saccharum rubrae*). China orange (*Citrus aurantium*). Purple star plum (*Chrysophyllum monophyrenum*). Golden apple (*Joba dulcis*). Bonnet pepper (*Capicum tetragonum*). Limes (*Citrus lima*). Green avocado pear (*Persea gratissima*). Papaw (*Carica papaya*). Pomegranate (*Punica granatum*). Green sugar apple (*Anona squamosa*). Peach mango (*Mangifera*). Plantain (*Musa paradisiaca*). Yellow banana (*Musa sapientum*). Purple star apple (*Chrysophyllum corallum*). Custard apple (*Anona reticulata*). Almora (*Terminalia catappa*). Citron (*Citrus medica*). Purple sugar apple (*Anona squamosa rubra*). East India mango (*Mangifera indica*). French guava (*Psidium pyriferum*). Yellow cashew (*Anacardium occidentale*). Red banana (*Musa rosacea*). Carb pepper (*Capicum*). Mamee apple (*Mammea Americana*). Granadilla (*Passiflora quadrangularis*). Pimplenouse shaddock (*Pimplenouse decumana*). Green cocoon-nut (*Cecus nucifera*). Turkey fig (*Ficus pertusa*). Otabeite gooseberry (*Cicca duticha*). Bread-fruit (*Artocarpus incisa*). Water melon (*Cucumis citrullus*). Purple pepper (*Capicum nigrum*). Grape-fruit (*Pompeles racemosa*). Sapadilla (*Achras lappilla*). Sour-sop (*Anona muricata*). Cherry pepper (*Capicum cerasiforme*). Chili pepper (*Capicum condeum*). Finger pepper (*Capicum longum*). Yellow pepper (*Capicum luteum*).

TRINIDAD.

SOUTH AREA, R. 31.

HARRIS, Lord, Governor; Agents, LIGHTLY & SIMON, 123 Fenchurch Street; and Messrs. DANIELL, 18 Wigmore Street, London.

THE Trinidad collection is one of much value and interest. It consists, however, almost exclusively of a series of natural specimens and productions. The few manufactures exhibited are of native workmanship; they comprise sieves, baskets, ferns, and such-like articles. Attention will, however, be drawn to a model of an Indian hut, with its simple and primitive furniture: the remarkable phenomenon, the pitch lake, is represented by a variety of specimens of pitch; some taken from its centre, some from the shores, and some from the earth in its vicinity. An economical application of this substance in the manufacture of charcoal for sugar has recently been made, and may prove of value. Minerals, metalliferous ores, clays, &c., are also sent for exhibition. Tortoise-shell and whale-oil represent the animal kingdom products. Those of the vegetable kingdom are much more numerous. Among

these are spices, oils, textile materials, agricultural products, gums and resins, drugs, and lastly, woods fitted for useful and for ornamental purposes. To many of these the attention of the naturalist, nor less that of the merchant, must be directed, and the ultimate result may prove of great benefit to the island.—R. E.

MINERAL KINGDOM.

1. Pitch, from the springs in the centre of the pitch lake.

[The pitch lake of Trinidad is the most remarkable natural phenomenon of that island. It is about a mile and a half in circumference, and in the vicinity of volcanoes emitting mud. On the shores of the lake the pitch is perfectly hard and cold, but towards the middle it becomes softer and more fluid. The pitch has not been much used except for pavement, as it requires the admixture of a large quantity of oil.—D. T. A.]

2. Petroleum, from springs in the Guapo Hills, near the pitch lake.

3. Cellular pitch, of which the surface of the lake principally consists.

4. Compact pitch, which crops out through other strata in the lands around the pitch lake.

5. Glance pitch, found in small detached masses, in the same.

6. Pitch turf, from a pitch bog, in the same.

7 and 8. Pitch, mixed with organic matter.

9. Mineral charcoal, prepared by Mr. H. Warner, from Trinidad pitch; and used as a substitute for animal charcoal in the manufacture of sugar; it can be produced at about one-fifth of the price of the latter.

10 to 14. Petroleum, mineral oil, naphtha, ammoniacal water and coke,—prepared from Trinidad pitch, and illustrating the process of making naphtha from pitch.

Trinidad pitch has been used extensively, and with success, as a flooring for warehouses, &c., and it is likely to be exported in large quantities for the manufacture of gas.

15. Pitch seam, found between strata of sandstone.

16. Sandstone, impregnated with mineral oils and naphtha.

17 to 20. Ochres, from the Guapo Hills.

21 and 22. Sandstone, with specular iron, from the Guapo Hills.

23. Black sand, from the sea-shore at Guapo.

24. Hematite, from Gaspari island.

25. Magnetic iron ore, from Maracass valley.

26. Iron pyrites, from the mud volcanoes.

27. Lignite, from Irois. It occurs in immense quantity, near the surface.

28. Coal, supposed to be anthracitic, from Manzanilla.

29. Slate, from St. Ann's hills; taken from the surface.

30. Honestone, from near Tamana.

31. Ochre, from Arima.

32. Clay, from Arima, used for making water jugs.

33. Earth (white), from Arima, used for white-washing houses, &c.

34. Earth (yellow), from St. Ann's river.

35. Earth (sulphureous), from near the pitch lake.

[The island of Trinidad, one of the Columbian archipelago, is about 50 miles in length from north to south and 30 miles across. A range of high ground, whose breadth is about 10 miles, runs along the northern side of the island, near the sea, and rises to the height of 1,800 to 2,400 feet, while on the south are extensive plains, also terminated by a range of hills, and at the south-west extremity are mud volcanoes. A submarine volcano exists a little south of Cape de la Brea. The pitch lake (described in another note) occupies the highest land in the island, and emits a strong smell, sensible at a distance of 10 miles. The whole island abounds with mineral oils of various kinds.

The lignite appears to be chiefly the accumulation of palm-wood. The coal is referred to, but no details of it have been forwarded.—D. T. A.]

ANIMAL KINGDOM.

Tortoiseshell: the hawk's-bill turtle is caught on all the coasts of Trinidad and the Gulf of Paria; the shell forms an article of export.

[This species of turtle, *Chelonia imbricata*, is readily distinguished from all others by the circumstance of the plates covering the back, overlapping each other like the tiles of a roof. These plates are much thicker, also, than those of any other species, and are more beautifully clouded. They are separated from the bone by heat, and are afterwards flattened, smoothed, and even united by their edges, by pressure at various degrees of temperature. Even the fragments and filings are capable of being rendered useful by being subject to heavy pressure in moulds, when heated to the temperature of boiling water.—T. B.]

Specimens of whale oil.

[The whale is caught in the Gulf of Paria. It usually makes its appearance about January, when the fishing season begins, and lasts till June; from 12 to 18 fish are caught annually, each giving from 60 to 80 barrels of oil.]

VEGETABLE KINGDOM.—(Oils and Fatty Substances.)

Cocoa-nut oil.

[A large quantity of this oil is made in the island, chiefly on the east coast, where, in one locality, there is an uninterrupted belt of cocoa-nut trees, 14 miles in extent; they usually bear nuts when five years old.]

Carap oil.

[This oil is made from the seeds of a common indigenous tree, called *Carapa guianensis*, and is highly esteemed as an unguent for the hair, for applying to the wounds of animals, for destroying ticks and other insects which infest cattle, and for the cure of rheumatism.]

Cocoa fat: this butter-like substance is obtained from the seeds of *Theobroma cacao*, and is esteemed as an emollient.

Spices.

Specimens of nutmegs.

[The nutmegs grown in Trinidad are considered to be equal to any from the East, as the tree thrives well in this climate. The annual produce per tree varies from 10 to 15 lbs.]

Cloves: this tree bears an abundant crop twice in the year; the produce is of good quality.

Black pepper: the plant thrives well, and is very prolific. Cayenne pepper: the smaller kinds of capsicum (bird pepper) are very abundant, and when dried and ground, make good cayenne pepper.

Vanilla: there are three different species of vanilla, all producing this highly-aromatic pod, and all indigenous to the colony.

Fibres.

Specimens of cotton.

[This, although not cultivated for many years, readily suits itself to the soil and climate; the specimen sent is grown from that variety called Sea Island cotton, a few seeds of which were imported into Trinidad, in January last year, from Jamaica. The quality or staple is better than that of many other kinds. Several persons are cultivating cotton at present as a trial crop.]

Bromelia (*Karata*): this plant is indigenous to the island, and, like all the pine-apple tribe, furnishes a strong and soft fibre.

Sterculia (*Caribæa* or *Majagua*): the bark of this tree furnishes the country people with cordage, and is strong.

Agave (*Viripara* or *Langue bœuf*): all the species of agave furnish a white, but somewhat harsh or brittle fibre.

AGRICULTURAL PRODUCTS.

Specimens of sugar (*Muscovado*).

[This is the staple product of the colony, and great exertions are being made to improve its quality. Mr. H. Warner, of this island, has succeeded in making a white muscovado sugar (by a peculiar process with mineral charcoal, made from the pitch of Trinidad), boiled in open pan; the specimen sent is a sample by this process.]

Specimen of rice.

[This article is productive in any part of the island, whether the land be high or low; its cultivation is not unhealthy in Trinidad, as in drier climates, where the land must be rendered swampy, for its successful cultivation.]

Specimens of cassava starch.

[These are the produce of *Jatropha manihot* (or bitter cassava). This plant is extensively cultivated. Few plants give so great return for the amount of labour bestowed on it; it forms the chief bread-stuff of the lower classes. Cassava cakes are made from its grated roots; the pulp is placed in a strainer (culebra), and after the poisonous juice is expressed, it is baked on a hot pan; they resemble oat-meal cakes in appearance. The starch is obtained from the smaller particles which pass through the strainer in a state of solution: it is then allowed to subside, and the water is separated from the starch, which is dried in the sun. This water is boiled down to a thick syrup: in the course of this operation its poisonous properties disappear, and it then forms the well-known West Indian sauce—*Casarepe*.]

Arrow-root: the produce of *Maranta arundinacea*, and other species. This plant produces abundantly.

Tous les mois, or tulema: the produce of *Canna coccinea*.

[This, as well as the former, gives a large return of starch. It is said that the produce per acre, in good soil, is equal to that of sugar from the sugar-cane, viz., from one to two tons per acre. The starches from both plants are manufactured in a similar manner: the thick fleshy corms are washed and passed through a series of rollers, then stirred rapidly in large vats, in order to precipitate the starch, which is afterwards washed several times, and dried in the sun.]

Brazil nuts: the produce of *Bertholletia excelsa*. The tree has been introduced from South America, and is ornamental and useful.

Tonquin bean: the tree, *Dipterix odorata*, was introduced from British Guiana.

Indian corn, or maize.

Coffee (*Mocha*): this variety of coffee has been introduced some years, and preserves, in cultivation, its peculiarly small round grain.

Theobroma, cacao, or cocoa: this tree is extensively cultivated; its produce forms a large article of export. The soil and climate of Trinidad combine to make it very productive. The annual export of late years has been above 4,000,000 of pounds.

Cocoa, or chocolate, manufactured.

Tobacco, in the leaf, from Siparia.

Tobacco, manufactured, from the same place.

Gums and Resins.

Gum anime: from Arima, the produce of *Hymenæa courbaril*.

Incense: the produce of *Trichilia trinilensis*.

Medicinal Products.

Sarsaparilla: the produce of *Smilax*, and abundant. Ginger.

Tanning and Dyeing Materials.

Turmeric, logwood, and fustic.

Woods for Ornamental and other Purposes.

Hymenæa courbaril, or locust: a valuable timber, and abundant, which grows from two to six feet in diameter.

Yoke: a handsome wood, analogous to mahogany, usually from two to three feet diameter.

Cedrela odorata: West Indian cedar; a useful and ornamental timber, from three to twelve feet in diameter.

Rhopala montana (*Agwatapana*): a wood very durable, and taking a fine polish; growing from 18 inches to 3 feet in diameter.

Tapana: used for felloes of wheels, and where strength and toughness are required.

Cordia (or *Sepe*): a useful light wood, analogous to English elm in texture, and possessing a bitter principle obnoxious to insects; from one to two feet in diameter.

Acaras (*Balata*): a timber much used; from two to six feet in diameter.

Achras (*Acoma* or *Mastic*): like the timber of the whole family of Sapotacæ much valued; from two to four feet in diameter.

Achras (*Zapotilla* or *Zapodilla*).

Astrocaryum auculeatum (*Gri gri*): this, like most of the palm tribe, furnishes good material for veneering.

Acrocomia sclerocarpa (*Grú grú*): a wood similar to the last.

Carapa guianensis (or *Carapa*): a useful timber, analogous to cedar; from two to three feet in diameter.

Bucida buceras (or *Olivia*): a strong useful wood, commonly used for making shingles; from two to four feet in diameter.

Purple heart: an abundant and useful timber, from two to four feet in diameter.

Fustic: used for all purposes where strength is required, and as a dyewood; from one to three feet in diameter.

Lecythis (*Idatamon* or *Agualacaro*): commonly used as shafts for carts, &c.; a tough wood of large size, and very common.

Tecoma serratifolia (*grey poui*); *Tecoma* (*black poui*); *Tecoma* (*green poui*).

[These bignoniaceous trees furnish hard and durable woods; their timber takes a fine polish, and has a peculiar colour; they furnish the most useful timbers of the colony; they are very abundant, and of large size, from three to four feet in diameter.]

Brosimum guianens (*Letter-wood*): the heart wood is the only part used, and is never of any great size.

Crescentia cujete (or *calabash*): furnishes a timber applicable to the same purposes, as that of the ash in England; it is used for boat-building; is very tough; and a common tree in the woods; about two feet in diameter.

Geoffroya inermis (or *l'Angeline*); a timber much employed as naves for wheels and other purposes.

Paltiva. Bois gri (or *iron-wood*).

Mimosa juliflora (*Yoke savan*); a hard and useful wood.

Roble: a common and excellent wood, from two to three feet in diameter.

Copaifera officinalis (*Copai*): is an ornamental and lasting wood.

Vitex capitata: this tree is reckoned durable timber, and is very common.

Bois lizard—*Guaiaecum officinale* (*Lignum vita*): very hard wood, about one foot in diameter.

MANUFACTURES, ORNAMENTAL SEEDS, &c.

Sieve, made of a species of *Maranta*, for sifting cassava meal.

Culebra, for expressing the cassava pulp, and extricating the cassava starch.

Calabashes (carved).

Fans, for ladies.

Fish-basket, as used by the Indians.

Seeds (ornamental): seeds used for beads of different kinds, viz., *Adenanthera pavonina*, *Coix lachryma*, *Erythrina corallodendron*, *Ormosia dasycarpa*.

[Of the plants which furnish seeds adapted for beads, the *Coix lachryma* is a tropical grass, indigenous in the East Indies—introduced into the West Indies. Its seeds, or, more properly, fruits, are hard and stony, and have a beautiful pearly lustre; they are popularly known as Job's Tears. The others are leguminous plants, whose seeds, properly so called, are remarkable for hardness and beauty. *Erythrina corallodendron* is a member of the kidney-bean group; *Adenanthera pavonina*, a tree of the mimosa tribe, is often called "red sandal-wood;" *Ormosia dasycarpa* is the necklace-tree; its seeds are of a most brilliant red hue, with a black eye.—E. F.]

Model of an Indian hut, in the village of Arima, 16 miles from the town of Port of Spain, made by Manuel Sorzano.

Its contents are as follow:—

- | | |
|---|---|
| 1 Arco—Bow. | 39 El trago—The grog. |
| 2 Flechas—Arrows. | 40 Gato—"cat." |
| 3 Fonda—Fishing Net. | 41 Perro—Dog. |
| 4 Taparos—Long calabashes used for keeping honey, &c. | 42 Anoto—Anoto used for cooking. |
| 5 Casabe—Cassava made of manioc. | 43 Abispero—Jack Spaniard's nest. |
| 6 Taralla—Cast net. | 44 Comejen—Wood lice. |
| 7 Trapiche—Used for pressing sugar-canes to extract the juice. | 45 Escova—Broom. |
| 8 Ansuellador—Fishing-rod. | 46 Garabato—Hook. |
| 9 Escusa—Kept over fire-place to preserve provisions by smoke. | 47 Cuero de gato tigre—Tiger-cat's skin. |
| 10 Hoya—Cooking-pot. | 48 Cama—bed. |
| 11 Casuela—Dish. | 49 Troja del viego—Old man's bed. |
| 12 Topias—Stones on fire-place. | 50 Etera—Mat. |
| 13 Hacha—Axe. | 51 Chinchorro—Hammock. |
| 14 Guayare—Basket carried on the back. | 52 Old Indian pascual. |
| 15 Pionilla—Indian bead. | 53 Ynes—Indian woman. |
| 16 Chomo—Bird-trap. | 54 Canuto—Indian child. |
| 17 Banco—Bench. | 55 Tiramba—Used as a Jew's harp. |
| 18 Machete—Cutlass. | 56 Butaque—Easy chair. |
| 19 Platanos—Plantains. | 57 Arepas—Corn bread. |
| 20 Piedra de Moler—Grinding-stone for making arepas (Indian corn-cake). | 58 Totumas—Calabashes. |
| 21 Totuma de Moler—Calabash receiving the corn. | 59 Cuero de Bena—Deer-skin. |
| 22 Cuchillo—Knife. | 60 Pecho de Piapoco—Tocan's skin. |
| 23 Paleta—Washerwoman's beetle. | 61 Guareguara—Fan. |
| 24 Canasto—Basket. | 62 Pala—Shovel. |
| 25 Lena—Wood for fuel. | 63 Chicora—Used for digging holes. |
| 26 Trojita—Used as a table. | 64 Piedra de Movejon—Stone for grinding cutlasses, &c. |
| 27 Naza de Poso—Fish-pot for deep water. | 65 Cucharas—Spoons. |
| 28 Naza de Corriente—Fish-pot for strong streams. | 66 Azadon—Hoe. |
| 29 Sebucan—Used for extracting the poisonous juice of the manioc for the purpose of making casadas, a juice which is called catara (castripe), and when boiled loses its poisonous effect, and makes a very good sauce. | 67 Rayo—Grater. |
| 30 Molenillo—Swizzle-stick. | 68 Tirite, Maranta (species of)—(outside of the stem of). |
| 31 Yesquero—Tinder-box. | 69 Mamure, <i>Carludovica scandens</i> (aerial roots of). |
| 32 Pilon—Mortar. | 70 Camuare, <i>Desmoncus</i> <i>Orycanthus</i> (scandent stem of). |
| 33 Bandola—A sort of guitar. | 71 Cerima— <i>Pothos</i> (species of). |
| 34 Haten—Tub. | 72 Maraca—Bangle or Chac-chac used for dancing, accompanied by the bandola or guitar. |
| 35 Chirguas—Water-jars. | 73 Chaguarama—Used as a mat (<i>Azeca oleracea</i>). |
| 36 Mapire—Basket. | 74 Cortadera—(<i>Scleria</i> , species of). |
| 37 Manare—Sieve. | 75 Timite— <i>Manicaria saccifera</i> (leaf of). |
| 38 Gallo—Cock. | 76 Cachipo—leaves—(<i>Maranta</i> , species of). |
| | 77 Pabito—Wax-taper. |

[The Indians of Trinidad were of the section of Caribs known as Yaoui. Like other members of the Carib race, the pure breed is scarcely, if at all, existing now. The greater number of articles enumerated in the preceding

list, as contents of an Indian hut, are of Spanish or of modern West Indian origin; so are the terms applied to them. Of the vegetable substances exhibited, several, as well as several utensils, concern the cassava, or cassada, a valuable article of food in the West Indies. It is prepared from the roots of the *Manihot utilisima*, or *Jatropha manihot*, a shrub of the spurge tribe. The large roots of this plant are full of poisonous juice, but when rasped, washed, and heated, the remaining substance is the nutritive cassava, and the starch is tapioca. Of other vegetables mentioned, the *Carludovica scandens* is a plant of the *Pandanus*, or screw-pine tribe; the *Desmoncus* is a spiny palm; the *Areca oleracea* is the famous West Indian cabbage-palm, of which the terminal bud furnishes a valuable and delicious article of food; the *Manicaria* is also a palm; the *Scleria* is a kind of sedge; the *Pothos* a plant of the *Arum* tribe; and the various kinds of *Maranta* are arrow-root plants. The "Jack Spaniard" is a kind of wasp.—E. F.]

ANTIGUA.

SOUTH AREA, Q. 30.

GREY, The Countess.

Fossil wood from Antigua, sent home by Governor Higginson.

ST. VINCENT.

SOUTH AREA, Q. 30.

ONE exhibitor from St. Vincent has sent contributions to the Exhibition. The articles forwarded consist of vegetable materials employed in basket-making, and for coarse textile purposes.—R. E.

BULLOCK, G., *St. Vincent*.

A selection of supple-jacks.

Arooma, as it grows. Arooma prepared by the Caribs for making baskets.

Mahant as it grows; the bark being the part used.

Mahant bark unprepared.

Mahant bark prepared for twisting into fishing-lines.

Lapeto in the raw state.

Lapeto prepared to be worked.

Lapeto in fine and coarse lines, for fishing, being very strong for the purpose.

BAHAMAS.

SOUTH AREA, R. 31.

Six exhibitors only appear to represent these islands at the Exhibition. Their contributions relate exclusively to the products of the vegetable and animal kingdoms, and of those only a very small number are exhibited. The models of fruit in wax form an interesting series, and represent with fidelity some of the most highly-esteemed vegetable delicacies of western produce. Yucca hemp and palmetto stuff are likewise exhibited. The beautiful white and coloured vases of shells, gathered from the shores of the Bahamas, are very attractive objects. Specimens of West India sponge and timber are also found among other articles.—R. E.

BARNETT, Mrs. EDWARD, of Nassau, and 14 Woburn Square, London—Producer.

Specimens of Fruits in Wax:—

1 Bread-fruit (*Artocarpus incisa*).

2 Plantain (*Musa sapientium*).

3 Coco plum (*Chrysobalanus icaco*).

4 Prickly pears (*Cactus opuntia*).

5 Banana (*Musa paradisiaca*).

- 6 Cashew (*Anacardium occidentale*).
- 7 Spanish pepper (*Capsicum annum*).
- 8 Star-apple—showing the interior (*Chrysophyllum*
canino).
- 9 Papaw (*Carica papaya*).
- 10 Spanish plum (*Spondias chrysobalanus*).
- 11 Gooseberry (*Cicca disticha*).
- 12 Water-lemon (*Passiflora laurifolia*).
- 13 Aquí.
- 14 Sugar-apple (*Anona squamosa*).
- 15 Balsam (*Impatiens noli me tangere*).
- 16 Star-apple (*Chrysophyllum canino*).
- 17 Fig (*Ficus carica*).
- 18 Sugar-cane (*Saccharum officinarum*).
- 19 Banana—showing the interior (*Musa paradisiaca*).
- 20 Sour sop (*Anona muricata*).
- 21 Guava (*Psidium pyrifera*).
- 22 Custard-apple (*Anona reticulata*).
- 23 Cherry (*Cordia alliodora*).
- 24 Guava—showing the interior (*Psidium pyrifera*).
- 25 Sapodilla—showing the interior (*Achras sapodilla*).
- 26 Hog-plum (*Spondias myrobalanus*).
- 27 Bread-fruit—showing the interior (*Artocarpus in-*
cisa).
- 28 Mango (*Mangifera indica*).
- 29 Avocado pear—cut to show the interior (*Persea*
gratissima).
- 30 Banana—rod (*Musa paradisiaca*).
- 31 Fig banana (*Musa coccinea*).
- 32 Sapodilla (*Achras sapodilla*).

THOMPSON, JOHN THOMAS, *Nassau*—Producer.

Specimens of Yucca hemp prepared by the exhibitor:—

- A One leaf of the Yucca (*Serrulata*).
- B The billets between which they are packed cut from the flower-shaft.

[This cork-like material is of use where softness and elasticity are required in bedding, or stuffing, or packing different sorts of work; in bodies of razor-strops. In thick or thin sheets, it is very convenient for purposes where points have to be fixed and withdrawn easily, such as cases for entomological purposes.]

- C Hemp prepared from the Yucca leaf.
- D Rope prepared from the hemp, but stained in soaking.
- E The same of the natural colour.

Specimens of palmetto stuff:—

- 1 Leaves of the palmetto.
- 2 Fibre prepared from the leaves.
- 3 Rope completed.

NICOLLS, Miss CAROLINE, *Nassau*—Producer.

Crown and pedestal of shell work.

GRANT, Miss, *Nassau*—Producer.

Vase manufactured of the mimosa bean.

BARNES & Co., *Nassau*—Producers.

Case of specimens of different varieties of West Indian sponge.

Specimens of woods, including satin-wood, horseflesh, mahogany, commonly called Madeira, horseflesh mahogany, cedar, crab-wood, log-wood, stopper-wood, and lignum vitæ.

GREIG, The Misses, *Nassau*—Manufacturers.

An epergne composed entirely of shells, forming cornucopias filled with flowers, in great variety of colour and beauty: the whole of the shells were gathered from the shores of the Bahamas. (*Consignees, Messrs. DANIELL, 18 Wigmore Street, London.*)

A large vase, with group of flowers, composed entirely of pure white shells.

A figure in a fancy costume, of shell-work.

(Forwarded by Governor Gregory to J. B. Cameron, Esq.)

GRENADA.

SOUTH AREA, R. 30.

TAPIOCA and nutmegs form the only articles representing Grenada at the Exhibition. These prove by no means the most important articles of export from this island; but one of them, nutmegs, is interesting as being of recent introduction into cultivation.—R. E.

GROSE, HENRY, 12 Coleman Street, London—Importer.

Tapioca: prepared from the roots of the cassava plant, and forming a highly-nutritious article of food. The plant is extremely prolific and easy of cultivation.

Nutmegs: introduced into the island by Mr. Kennedy, in 1827. The export to the United Kingdom amounted in 1850 to 1,400 lbs.

MONTSEERRAT.

SOUTH AREA, Q. 10.

Two articles only appear to represent Montserrat: these are both articles of food.—R. E.

A box of maize or Indian corn.

A box of arrow-root.

ST. KITT'S.

SOUTH AREA, R. 30.

THIS island is represented by one exhibitor, a native black labourer. The contribution furnished is a fishing-utensil, made out of the inner bark of a tree.—R. E.

A West Indian fish-pot, made by John Morris, a black labourer, in the Island of St. Christopher, from the inner bark of a tree.

It is usually baited and weighted, and then sunk to the depth of eight or ten fathoms. A buoy marks the spot, and it remains about twelve hours in the water.

BRITISH GUIANA.

SOUTH AREA, R. 32.

ABOUT one hundred and sixty exhibitors appear to represent this most interesting colony. The contributions forwarded belong almost exclusively to the first section of the classification of the Exhibition. There are a few specimens of native manufactures in wood and woven work, as the shaak-shaak, used to make a noise in the dances; the singular baskets used by Indian women to carry their children in, fly-brushes, baskets made of the cabbage-palm, fans of the eta palm, &c. But these exhibit simply that neat but rude and simple industry which, with little or no elaboration of the raw material, produces implements and ornaments from the most convenient substances yielded by nature. The articles in the first four Classes are extremely valuable and interesting, not only to the naturalist, but also in a commercial point of view. The arrow-root, starches, tapioca, coffee, cotton, sugar, and timber, abundantly yielded by plants in this prolific colony, are well represented. Several of the contributions are experimental in their tendency, and have been made with a view to learn the probability of the development of a commercial demand for these articles. The timber of this colony will probably ultimately become valuable in commerce. Several medicinal products are likewise exhibited.—R. E.

CATALOGUE of ARTICLES, the Produce of BRITISH GUIANA, a colony on the coast of SOUTH AMERICA, comprising the counties of DEMERARA, BERBICE, and ESSEQUEBO, exhibited by ALEXANDER F. RIDGWAY, 42 Leicester Square, London, Agent to the Royal Agricultural and Commercial Society of the Colony.

POLLARD, T. M.

1 White sand, from Mount Pleasant, Warratilla Creek, River Demerara.

[This sand has been exported to the United States of America for the purpose of glass-making.]

2 Red sand, from Warratilla Creek, River Demerara.

DUGGIN, T. B.

3 White sand, from Monte Video, River Berbice, about 200 miles above its estuary.

4 Orecala, a decomposed rock, from River Berbice, supposed to be valuable in the manufacture of pottery.

[The rocks yielding the materials of ordinary pottery are of the granitic and porphyritic series. The agency of slow but continued decomposition, by atmospheric gases and water, causes the separation of their hard materials, and their resolution into a soft friable mass, now often called porcelain clay. This decomposition affects the felspar composing these rocks. The rock in question is in all probability a felspathic rock.—R. E.]

BEE, J. F.

5 Clays and sands, from an Artesian boring, and obtained at various depths.

[These clays and sands were obtained at various depths from an Artesian boring. This boring, 4 inches in diameter and 118 feet in depth, on Plantation Woodlands, one mile from the mouth of the Mahaica River, was executed between 6th and 22nd October, 1849, by Mr. John Allt. The water is delivered 18 inches above the surface of the soil, and is greatly increased in quantity by the flood of spring tides, like all other Artesian borings of the colony. The following memorandum was taken during the process of boring:—1 to 6 feet, surface soil; 6 feet, layer of caddy; 7 to 9 feet, blue clay; 9 to 39 feet, soft mud mixed with caddy, in which the sugar went down by its own weight; 39 to 53 feet, rotten wood and pegs, or decayed vegetable matter; 53 to 55 feet, bluish-grey clay, stiff; 55 to 57 feet, clay, a little red and grey; 57 to 70 feet, reddish clay; 70 to 82 feet 10 inches, yellowish-grey clay, with a little sand and ochre, very stiff; 82 feet 10 inches to 86 feet 6 inches, bluish-grey clay, streaked; 86 feet 8 inches to 92 feet, bluish-grey clay, streaked, more yellow. The bed of sand from which the water is obtained was reached at a depth of 118 feet, and the same stratum was found at a depth of 125 feet. The numbers on the 31 specimens sent indicate the depth in feet at which they were obtained.

There are a considerable number of Artesian wells in this colony: the water is not, however, pure. It contains a large quantity of oxide of iron, held in solution by carbonic acid. This separates as a yellow deposit on exposure of the water to the air.—R. E.]

NETSCHER, A. D. VAN DER GON.

6 Rice, from Plantation Klein Pouderoeyn, River Demerara.

DUGGIN, T. B.

7 Rice, from Monte Video, River Berbice.

[The colony of British Guiana is eminently favourable for the cultivation of rice. It is worthy of remark, that three crops can be obtained annually in this colony from

one sowing, the new crop ratooning or springing up from the old roots after each reaping.]

NETSCHER, A. D. VAN DER GON.

8 Maize, or Indian corn, from Plantation Klein Pouderoeyn, River Demerara.

[The maize (*Zea mays*, Lin.) grown in British Guiana, commands a higher price in the market than that imported from the United States of America, from which the chief supply is derived.]

9 Meal from maize, or Indian corn, from Plantation Klein Pouderoeyn, River Demerara.

10 Plantains, unripe, sliced and dried without the aid of fire, from Plantation Klein Pouderoeyn, River Demerara.

[The plantain (*Musa paradisiaca*) has frequently been suggested as an article of export. In its ripe state, no unexceptionable and sufficiently cheap method of preserving it has yet been suggested. It is sometimes so abundant and cheap that it might, if cut and dried in its green state, be exported with advantage. It is in this unripe state that it is so largely used by the peasantry of this colony as an article of food. It has always been believed to be highly nutritive, but this is scarcely justified by analyses.

When dried and reduced to the state of meal, it cannot, like wheat flour, be manufactured into macaroni or vermicelli, or at least the macaroni made from it falls to powder when put into hot water. The fresh plantain, however, when boiled whole, forms a dense firm mass, of greater consistency and toughness than the potato. This mass, beaten in a mortar, constitutes the *foo-foo* of the negroes. The plantain meal cannot be got into this state unless by mixing it up with water to form a stiff dough, and then boiling it in shapes or bound in cloths.]

11 Plantain meal, or konkin tay, from Plantation Klein Pouderoeyn, River Demerara.

[Plantain meal is prepared by stripping off the husk of the plantain, slicing the core, and drying it in the sun. When thoroughly dry, it is powdered and sifted. It is known among the Creoles of the colony under the name of *Conquin-tay*. It has a fragrant odour, acquired in drying, somewhat resembling fresh hay or tea. It is largely employed as the food of infants, children, and invalids. As food for children and convalescents, it would probably be much esteemed in Europe, and it deserves a trial on account of its fragrance, and its being exceedingly easy of digestion. In respect of nutritiveness, it deserves a preference over all the pure starches on account of the proteine compounds it contains.

The flavour of the meal depends a good deal on the rapidity with which the slices are dried; hence the operation is only fitted for dry weather. Above all, the plantain must not be allowed to approach too closely to yellowness or ripeness, otherwise it becomes impossible to dry it. The colour of the meal is injured when steel knives are used in husking or slicing, but silver or nickel blades do not injure the colour. Were the plantain meal to come into use in England, and bear a price in any way approaching to that of Bermuda arrow-root, it would become an extensive and very profitable export. Full-sized and well-filled bunches give 60 per cent. of core to 40 of husk and top-stem, but in general the core does not much exceed 50 per cent., and the fresh core will yield 40 per cent. of dry meal, so that from 20 to 25 per cent. of meal is obtained from the plantain, or 5 lbs. from an average bunch of 25 lbs.; and an acre of plantain walk of average

quality, producing during the year 450 such bunches, would yield a ton and 10 lbs. of meal.]

DAVISON, WILLIAM.

12 Plantain meal, from Plantation Vigilance, East Sea Coast, Demerara.

GARNETT, H. T.

13 Plantain meal, from Plantation Herstelling, River Demerara.

14 Meal from the bitter cassava, from the same plantation, baked into bread.

[This substance affords a remarkable exemplification of the agency of heat in destroying or dissipating the pernicious properties of some vegetable products. The juice of the root of the cassava plant, or mandioc plant (*Manihot utilissima*), is extremely venomous, and produces rapid death. Yet the root, when rasped and washed and baked, is not only wholly innocuous, but proves a nutritious article of vegetable diet. This fact appears to be a part of the universal experience obtained by the natives of every district where it is found. The process of its preparation for use has been thus described:—

“It is usually conducted as follows:—The squeezed pulp is broken up, sifted, and exposed to the sun on trays or mats till it is fully more than half dry. An iron hoop of the size and thickness of the cake to be made is then laid on a girdle or hot plate, and the space within the hoop is filled evenly with the somewhat moist meal, no previous kneading or rolling having been employed. As soon as the coarse meal coheres, the ring is lifted and the cake is turned and heated on the opposite side. The heat should not be sufficient to brown the cake. The cakes are finally dried by exposure to the sun. From the dry cassava meal cakes may be prepared by sprinkling it with as much cold water as to moisten it to the proper point, and then proceeding as above. Hot water cannot be employed, neither can kneading, or any considerable degree of compression be used, otherwise the water does not evaporate readily enough, the starch gets too much altered by the heat, and the cake becomes tough.”—*Dr. Shier's Report on the Starch-producing Plants of British Guiana.*

—R. E.]

DE PUTRON, J.

15, 15a, 15b Bananas, dried without the aid of fire, from Plantation Vigilance, East Sea Coast, Demerara.

[The banana is yielded by *Musa sapientum*, Lin. These specimens are sent in order to ascertain the likelihood of their standing the voyage, and becoming an article of export. They were prepared in the month of September, 1850. The following information regarding the banana is extracted from a popular source:—“Eight or nine months after the sucker has been planted, the banana begins to form its clusters, and the fruit may be collected in the tenth or eleventh months. When the stock is cut, the fruit of which has ripened, a sprout is put forth, which again bears fruit in three months. The whole labour of cultivation which is required for a plantation of bananas, is to cut the stalks laden with the ripe fruit, and to give the plants a slight nourishment once or twice a year by digging round the roots. A spot of little more than a thousand square feet will contain from 30 to 40 banana plants. A cluster of bananas, produced on a single plant, often contains from 160 to 180 fruits, and weighs from 70 to 80 lbs. But reckoning the weight of a cluster only at 40 lbs., such a plantation would produce more than 4,000 lbs. of nutritive substance. Humboldt calculates that as 33 lbs. of wheat and 99 lbs. of potatoes require the

same space as that in which 4,000 lbs. of bananas are grown, the produce of bananas is consequently to that of wheat as 133 to 1, and that of potatoes as 44 to 1. The banana ripened in the hot-houses of Europe has an insipid taste, but yet the natives of both Indies, to many millions of whom it supplies their principal food, eat it with avidity, and are satisfied with the nourishment it affords. This fruit is a very sugary substance, and in warm countries the natives find such food not only satisfying for the moment, but permanently nutritive. Yet weight for weight, the nutritive matter cannot at all be compared with that of wheat, or even potatoes. At the same time a much greater number of individuals may be supported upon the produce of a piece of ground planted with bananas, compared with a piece of the same size in Europe growing wheat. Humboldt estimates the proportion as 25 to 1; and he illustrates the fact by remarking that a European newly arrived in the torrid zone is struck with nothing so much as the extreme smallness of the spots under cultivation round a cabin which contains a numerous family of Indians.” It may be proper here to notice that the banana is cultivated in this colony to a very limited extent, and used solely as a fruit in its ripe state. The plantain, on the other hand, is extensively cultivated, and in its unripe state is the staple and favourite food of the Creole and African population of the colony.]

NETSCHER, A. D. VAN DER GON.

16 Coffee, from Plantation Klein Pouderoeyen, River Demerara.

KENNEDY, JOHN.

16a, 16b Pearl coffee, from Plantation Nooit Gedacht, Canal No. 1, River Demerara.

BEE, J. F.

17, 18 Coffee in the husk, and in the berry, from Georgetown, Demerara.

[The quantity of coffee, the produce of British Guiana, returned for taxation in 1842, amounted to 1,214,010 lbs. Dutch. The cultivation is now almost extinct. Nos. 16a and 16b are from one of the few estates which have been and still continue to be cultivated solely as coffee plantations.]

NETSCHER, A. D. VAN DER GON.

19 Cocoa seeds, from Plantation Klein Pouderoeyen, River Demerara.

[Cacao, or cocoa (*Theobroma cacao*, Lin.) was never extensively cultivated in this colony, although the soil and climate are well adapted for its production.]

DUGGIN, T. B.

20 Saouari nuts, from River Berbice.

[Saouari nuts (*Pekea tuberculosa*, Aubl., or *Cayocar tomentosum*, Dec.) The kernel of this nut is one of the most delicious fruits of the nut kind known. It abounds in the forests on the banks of the rivers of the colony.]

OUTRIDGE, J. Esq.

20a Seed-vessel of the “monkey pot,” from the River Demerara.

[This seed-vessel is said to contain a large number of oleaginous kernels.]

SHIER, DAVID.

21 Capsicums, dried capsules.

22, 22a Capsicums, preserved in dilute acetic acid.

23 Capsicums, active principle extracted by olive oil.

24 Capsicums, active principle extracted by vinegar, all from Plantation Kitty, East Sea Coast, Demerara.

[These capsicums, known in the colony under the name of Buckramanni peppers, are the most pungent and aro-

matic of the whole tribe. The seeds, which are inert, have been removed, and the dried capsules are sent in the expectation of their being found to be a more piquant condiment than the article sold under the name of Cayenne pepper.]

STUTCHBURY, J. S.

25 Capsicums, preserved in dilute acetic acid, from Georgetown, Demerara.

DUGGIN, T. B.

26 Fruit of a shrub, called birambi, from River Berbice, preserved in pickle.

[This fruit makes a delicious preserve.]

NETSCHER, A. D. VAN DER GON.

27 Limes (*Citrus lima*), from Plantation Klein Poudroyen, River Demerara, preserved in pickle.

STUTCHBURY, J. S.

28 Kasareep, the inspissated juice of the bitter cassava, from Georgetown, Demerara.

[Kasareep, from the *Jatropha manihot*, is much used as the basis of sauces, and is used extensively in the colony in the preparation of pepper-pot, &c. Dr. Shier, in the Report referred to, notices it as follows:—"To those who have never visited the tropics, it may be proper to notice that *casareep* is the concentrated juice of the roots of bitter cassava, and the basis of the West Indian dish pepper-pot. One of its most remarkable properties is its high antiseptic power, preserving any meat that may be boiled in it for a much longer period than can be done by any other culinary process. *Casareep* was originally a Buck or Indian preparation, and has often been described with more or less accuracy." It is well known that some of the Dutch planters of this colony have, by means of the addition of a small quantity of *casareep*, from time to time, to varieties of animal food, been enabled to keep up, in daily use, the *same pepper-pot* for many years.]

BEE, J. F.

29 Kasareep, the inspissated juice of the bitter cassava, from Georgetown.

DE PUTRON, J.

29a Saline ash; in appearance similar to a black cinder.

[This ash is obtained by burning certain plants growing on the rocks near the Rapids, about 1,000 miles up the River Demerara. The salt is extracted when required by mixing water with the ash, and after the insoluble parts have subsided, pouring off the solution and using it as salt. A similar saline ash is also said to be obtained by burning the Ita palm.]

STUTCHBURY, J. S.

30 Turmeric root, from Georgetown, preserved in dilute acetic acid.

[The Turmeric (*Curcuma longa*, Lin.) grown in this colony is superior to any imported.]

GARNETT, H. T.

31 Arrow-root, from Plantation Herstelling, River Demerara.

[The produce of *Maranta arundinacea*, Lin.]

32 Starch, from the bitter cassava, from Plantation Herstelling, River Demerara.

[When the roots of the cassava plant are rasped and washed in water, a large quantity of starch granules are extracted from the vegetable tissue, and float in the water. The water charged with these granules is allowed to stand, when the granules settle down, and the superabundant fluid is poured off. The starch is then collected and dried.—R. E.]

SHIER, DAVID.

33 Starch, from the sweet cassava, from Plantation Kitty, East Sea Coast, Demerara.

[The sweet and bitter cassava merit attention as starch-producing plants. The sweet cassava yields 26·92, and the bitter 24·84 of starch per cent. They are occasionally grown for this purpose in the colony, and yield a large percentage of starch; but there exists an opinion, whether well or ill founded, that it is liable to rot linen, and the preference is given here to the starch of arrow-root. Cassava grows readily in any soil, and, with good drainage, two crops of the sweet variety are yielded per year. It grows luxuriantly in the light soils of the interior, as well as in the stiff clay soils of the coasts. It is considered an excellent preparatory crop in new and stiff land, on account of its tendency to loosen the soil.]

34 Starch, from the plantain, from Plantation Kitty, East Sea Coast, Demerara.

35 Starch, from Buckyam, from Plantation Kitty, East Sea Coast, Demerara.

ANDERSON, GEORGE, & Co.

36 Vacuum-pan sugar, from Plantation Ogle, East Sea Coast, Demerara.

[This sugar was manufactured as follows:—The cane juice was clarified by lime, and the coagulum separated by subsidence, by means of clay. The evaporation was conducted in the ordinary way, and finished in the vacuum pan. This sugar was washed by means of Innis's process.]

JONES, JOHN.

37, 38 Vacuum-pan sugar, from Plantation Hope, East Sea Coast, Demerara.

[The sugar No. 37 was washed by means of Innis's process; that of No. 38 was cleaned by means of Hardman and Finzel's patent centrifugal machine.]

STUTCHBURY, J. S.

39 Vacuum-pan sugar, from Plantation Emnore, East Sea Coast, Demerara.

[In the manufacture of this sugar, the syrup was passed through animal charcoal before being put into the vacuum pan.]

LAING, JAMES.

40 Sugar, from Plantation Friends, River Berbice, manufactured in Gadsden and Evans's pan.

[This sugar on being removed from the pan was put into cones, and, after the molasses were drained off, was syruped.]

SHIER, DAVID.

41, 42, 43, 44 Muscovado and molasses, from the Colonial Laboratory, Georgetown, Demerara.

[This muscovado (No. 41) was made according to the plan recommended by Dr. Shier. Lime in slight excess was used in clarification. The coagulum was got rid of by subsidence. The excess of lime was neutralised, and the juice was concentrated on the open fire. No washing or syruping had recourse to. The specimen of molasses (No. 42) is from the muscovado sugar marked No. 41. The muscovado (No. 43) was made by a modification of Melsen's process. No washing or syruping was used. The specimen of molasses (No. 44) is from the muscovado sugar marked No. 43.]

STUTCHBURY, J. S.

45 Muscovado, from Plantation Fellowship, Mahaicong, East Sea Coast, Demerara.

[Manufactured by the ordinary process in use on estates in this colony.]

All of the above-mentioned sugars are the produce of the Otaheite or Tahiti cane (*Saccharum officinarum*, Lin.), the variety universally cultivated in this colony.]

46 Copaiba, balsam of, from River Pomeroon, Essequibo.

[There are several trees in this colony supposed to yield the balsam, not yet botanically determined.]

OUTRIDGE, J.

47 Caoutchouc, from River Demerara, near the Falls.

[Taken from the India-rubber tree by tapping, and formed into balls by the Indians, who climb the tree, and, as the gum exudes, rub it on their bodies till it assumes a sufficient consistency to be formed into balls.]

48 Milk from the cow-tree, from River Demerara.

[The cow-tree in question is the Hya-hya (*Tabernaemontana utilis*). It grows freely in the dense forests of this colony. It is related that an exploring party having felled one of these trees near a brook, the quantity of milk discharged by it was so great, as in the course of an hour to render the water quite milky.

It is one of the interesting discoveries of botanists that several trees yield a milk-like fluid, which is in almost all respects comparable to that afforded by the cow. Humboldt describes, in striking language, his slaking his thirst by a draught of milk from the *Palo de Vaca*, a cow-tree of South America. Trees belonging to different genera have been called by this name. The cow-tree of South America is an arto-carpad; other cow-trees belong to the order of figs. The milk has been analysed, and found to yield a considerable proportion of gelatine, a principle found in the animal fluid.—R. E.]

DUGGIN, T. B.

49 Gum resin, from the simiri or locust tree, from River Berbice.

[This gum is obtained by digging in the vicinity of the roots of the tree (*Hymenæa courbaril*, Lin.), from which it exudes in a vertical direction in columns or pieces upwards of a foot in length. It may also be obtained by tapping the tree, when in the course of a few days a large solid mass is formed. It is said to be the gum anine of commerce, and is occasionally used in this colony for the same purposes as gum copal. It may be obtained in great abundance in various parts of the colony.]

BONYUN, G. R.

50 Karman, from River Essequibo.

[Used by the Indians for waxing their nets and other purposes, and is said to be the inspissated juice of a tree called the man or mannee tree.]

OUTRIDGE, J.

51 Hyawai gum or incense, from River Demerara.

[This gum is very fragrant, and supposed to be suitable for pastilles and similar purposes. It is said to be obtained from the *Icica heptaphylla*, Aubl.]

STUTCHBURY, J. S.

52 Laurel oil, from River Pomeroon, Essequibo.

[This oil, supposed to be obtained from *Oreodaphne opifera*, Nees, is extensively used by the natives in affections of the joints. It is also an admirable solvent of India rubber.]

53 Crab oil, from River Essequibo.

[This oil is obtained from the seeds of the tree yielding crabwood, (*Xylocarpus carapa*, Spr., or *Carapa guianensis*, Aubl.) It is used in the colony for burning, and is highly esteemed as a hair oil.]

DUGGIN, T. B.

54 Dari tree, seeds of the, from River Berbice.

[Candles are made from these seeds, said to be equal to wax. The tree abounds throughout the colony.]

SHIER, D.

55 Sandbox tree, seeds of, from Plantation Kitty, East Sea Coast, Demerara.

[The seeds of *Hura crepitans*, Lin. They are a drastic purgative, and contain a very limpid oil.]

KOCK, H. A.

55a Fruit of the lana tree.

[This fruit is the produce of *Genipa Americana*, Lin., a tree very abundant in the colony, and produces the Lana dye.]

55b Lana dye, from the River Berbice.

[This dye is the juice of the fruit of the *Genipa Americana*, Lin. The colour produced is a beautiful bluish black. The Indians use it in staining their faces and persons, and the effect lasts for several days.]

OUTRIDGE, J.

55c Indian paint, from the River Demerara.

[This pigment is prepared by mixing arnotto, the red viscous pulp surrounding the seeds of the *Bixa orellana*, Lin., with crab oil, the produce of the seed of *Carapa guianensis*, Aubl. It is used by the Indians for decorating their persons, and other purposes.]

DUGGIN, T. B.

56 Mora tree, bark of, from River Berbice.

[The *Mora excelsa*, a fabaceous tree, was discovered by Sir R. Schomburgk. It is one of the most magnificent trees in the forests of British Guiana. The wood is stated to be equal to oak of the best kind.—R. E.]

57 Hog plum tree, bark of, from River Berbice.

[Bark of *Spondias lutea*, Lin.; used as a tanning substance, and very abundant.]

SHIER, DAVID.

58 Courida tree, bark of, from Plantation Kitty, East Sea Coast, Demerara.

[Bark of *Avicennia nitida*, Lin.; used as a tanning substance, and extremely abundant on the sea coast.]

STUTCHBURY, J. S.

59 Hy-yarri or Hai-ari, fish poison, from River Demerara.

[Stem of *Lonchocarpus nicou*, Dec.; used by the natives to intoxicate fish for the purpose of capturing them.]

[This fish poison has been described as being employed in the following manner:—The natives beat the root with heavy sticks till it is reduced to shreds like coarse hemp. They then infuse it, and throw the infusion over the area of the river or pool selected. In about twenty minutes every fish within its influence rises to the surface, and is either taken by the hand or shot with arrows. A solid cubic foot will, it is stated, poison an acre of water, and the fish are said to be still wholesome for human consumption.—R. E.]

KOCK, H. A.

59a Fruit of yarrisara, from River Berbice.

[This is stated by the contributor, Dr. Koch, to be the fruit of a vine, found in the interior of the colony, and which he claims the merit of having discovered to be the chief ingredient of the celebrated Wourali poison.]

STUTCHBURY, J. S.

60 Angostura bark, from River Pomeroon, Essequibo.

[Supposed to be obtained from *Galipea cusparia*, St. Hil. or *G. officinalis*, Hanc. Used as a febrifuge.]61 *Rhizophora racemosa*, bark of, from East Sea Coast, Demerara.[Bark of *Rhizophora racemosa*, Meyer; ascertained to be a very valuable remedy in cases of chylous urine.]

OUTBRIDGE, J.

62 Trysalc bark, from River Demerara.

[Used as an emetic by the Indians.]

STUTCHBURY, J. S.

63 Greenheart tree, bark of, from River Demerara.

[Bark of *Nectandra rodiei*, Benth. Yields the alkaloid known as bibirine, a febrifuge.]

DUGGIN, T. B.

64 Greenheart tree, seeds of, from River Berbice.

[Used as a tonic and febrifuge. Occasionally, in times of scarcity, these seeds are grated and mixed with decayed wallaba (the wood of *Eperua falcata*, Aubl.), and used by the Indians as food.][The greenheart tree of Demerara will probably become of considerable commercial interest and value. In Class 2 of the United Kingdom will be found notices of the alkaloid bebeerine, obtained from its bark, which promises to become a substitute for quinine. Its botanical name is *Nectandra rodiei*, and it belongs to the natural order *Lauracea*.—R. E.]

STUTCHBURY, J. S.

65 Guinea pepper, or grains of Paradise, from River Demerara.

[Seeds of *Amomum melegueta*, Roxb. These seeds are much superior to those imported from Africa.]66 *Alpinia nutans*, seeds of, from River Demerara.[These seeds (*Alpinia nutans*, Rosc.) resemble, and in some respects possess, the properties of cardamoms.]

SHIER, DAVID.

67 Physic nuts, seeds of, from Georgetown, Demerara.

MANGET, Mrs.

68 Physic nuts, seeds of, from Georgetown, Demerara.

[These physic nuts are the produce of different trees, but are possessed of similar emetic and purgative properties, and are frequently used as a domestic medicine by the black population of the colony.]

ARRINDELL, Mrs.

69 *Quassia amara*, from Plantation Zeelandia, Wakenaam, River Essequibo.[This is the produce of *Quassia amara*, Lin. It is distinct from the quassia of the shops, and is extensively and successfully used in the colony as a tonic and febrifuge. It is very abundant.]

STUTCHBURY, J. S.

70 Boeiari, bush rope, from River Demerara.

[This bush rope is plentiful in the interior of the colony, and is a favourite remedy of the Indians in pectoral complaints. It is exceedingly aromatic, and forms an excellent ingredient in stomachic bitters.]

BLAIR, DANIEL.

71 Cotton, cleaned, from Plantation Batavier, Mahaica River.

72 Cotton, uncleaned, from Plantation Batavier, Mahaica River.

[These specimens were obtained from wild or self-sown

plants, the remains of the cotton cultivation on Plantation Batavier, which was abandoned about twenty-five years ago.]

NETSCHER, A. D. VAN DER GON.

73 Cotton, uncleaned, from Plantation Klein Pouderyen, River Demerara.

BEE, J. F.

74 Cotton, hard seed, cleaned, Plantation Woodlands, River Mahaica, Demerara.

HUGHES, P.

74a, 74b Mexican white seed. Large and small green seed; large and small kidney; loose black seed; all from Plantation Anna Regina, Essequibo.

BEE, J. F.

75 Cotton, loose seed, cleaned, Plantation Woodlands, River Mahaica, Demerara.

76 Cotton, loose seed, uncleaned, Plantation Woodlands, River Mahaica, Demerara.

[The above specimens of cotton are the produce of *Gossypium arboreum*, Lin., and other arborescent species. Sir Robert Schomburgk, in his description of British Guiana, makes the following observations on the subject of the cultivation of cotton, p. 103:—"The indigenous cottons are very numerous, and the Indian has generally a few shrubs of that useful plant around his hut. However, I have seen the industrious Macusi cultivating it more extensively. The hammocks which the Indians manufacture of it are valued for their strength and durability, and are considered superior to the European article. Like the staples before enumerated, cotton has been only cultivated by the colonists at the coast regions; but its cultivation has in a great measure been abandoned, because our cottons, raised by free labour and in a British colony, were undersold by those produced by slavery in the United States. If, with regard to the abundance and cheapness of labour, British Guiana were put on the same footing as slave states in America, an inexhaustible supply of cotton of every description might be produced. There is no doubt that all kinds of cotton, from the best long staple down to the finest short staple, might be cultivated in the colony, as the kind which does not thrive on one soil or climate might be produced in another. An extent of seacoast of 280 miles from the river Corentyne to the mouth of the Orinoko, would produce cotton vying with the best in the world. I doubt the opinion that the finest cotton will not grow at a greater distance than twenty miles from the sea. I have sent samples of the wild cotton from the interior to the colony which were admired by competent judges for their fine long staple and silky appearance. No care whatever had been bestowed upon the cultivation of these plants which grew at a distance of 300 or 400 miles from the coast. Although the growth of the plant was not luxuriant, it was covered abundantly with cotton of the most excellent quality; indeed it would be highly advisable to the cotton growers at the coast to exchange the seeds."]

ROSS, E. C.

76a Silk cotton, loose and in pod.

76b Silk cotton, bale of, from Georgetown, Demerara.

[Obtained from the seed vessels of the silk cotton tree (*Bombax Ceiba*, Lin.). It has been exported to the United States, and used in the manufacture of hats.]

DAVISON, W.

77 Plantain fibre, from Plantation Vigilance, East Sea Coast, Demerara.

NETSCHER, A. D. VAN DER GON.

78 Plantain fibre, from Plantation Klein, Pouderoyen, River Demerara.

[This fibre is produced from the stems of plantain and banana trees (*Musa paradisiaca* and *sapientum*), and might be obtained in very large quantities from the plantain cultivation of the colony. It is calculated that upwards of 600 lbs. weight of fibre might be produced annually from each acre of plantains, after reaping the fruit crops. At present the stems of the plantain trees, when cut down, are allowed to rot on the ground. If a remunerative price could be realized for this fibre, a new branch of industry would be opened up to the colonists.]

Note.—In addition to the above-mentioned specimens, a barrel of the fibre, contributed by W. Davison, has been sent for experimental purposes. It may be proper to mention that in 1846, a gentleman visited this colony, and exhibited several specimens of cloth of a beautiful silky texture, and specimens of paper of superior quality, manufactured from the fibre of plantains grown in the Jardin des Plantes.]

DE BURTON, J.

79 Silk grass, fibre of, from Plantation Vigilance, East Sea Coast, Demerara.

[This fibre is obtained from *Agave vivipara*, Lin.]

DUGGIN, T. B.

80 Silk grass, fibre of, from River Berbice.

[This fibre is obtained from a species of *Bromelia*. It is very strong, and is used by the Indians to make bow-strings, nets, cordage, &c.]

81 Fibisiri, fibre of, from River Berbice.

[This fibre is derived from the Ita palm (*Mauritia fteruosa*, Lin.) It is used by the Indians for making hammocks, cordage, &c.]

BEE, J. F.

82 Mohoe, fibre of, from Demerara.

[Obtained from a tree of the mallow tribe (*Thespesia populnea*, *Correa*, or *Hibiscus elatus*, Swartz?) It is very strong, and used for making cordage, coffee bags, &c.]

83 Table top, including 84 different specimens of woods, the growth of the colony, viz. :—

- | | |
|-----------------------|-----------------|
| 1 Sand Mora. | 28 Waiki. |
| 2 Lana. | 29 Siridani. |
| 3 Itikiribouraballi | 30 Hooboballi. |
| (young). | 31 Bannia. |
| 4 Kretti, or bastard | 32 Hyawaballi. |
| silverballi. | 33 Tatabo. |
| 5 Kurara. | 34 Masaranuni. |
| 6 Kakaralli. | 35 Cabacalli. |
| 7 Brown silverballi. | 36 Pritti. |
| 8 Yellow silverballi. | 37 Canuballi. |
| 9 Youraballi. | 38 Mora. |
| 10 Saouari. | 39 Letterwood. |
| 11 Crabwood. | 40 Kucuhara. |
| 12 Yerara. | 41 Wamara. |
| 13 Purpleheart. | 42 Kamakasa. |
| 14 Simaruba. | 43 Hiaballi. |
| 15 Gomarow. | 44 Determa. |
| 16 Cedar white. | 45 Wadaduri. |
| 17 Locust. | 46 Rosewood. |
| 18 Coutaballi. | 47 Saka. |
| 19 Carahurri. | 48 Kerla. |
| 20 Huwassi. | 49 Kamacusack. |
| 21 Armiosi. | 50 Cedar, red. |
| 22 Suradanni. | 51 Wild orange. |
| 23 Asepoca. | 52 Guava. |
| 24 Akaraki. | 53 Logwood. |
| 25 Hymakusi. | 54 Tabicushie. |
| 26 Ducalaballi. | 55 Coffee. |
| 27 Turiballi. | 56 Murwana. |

- 57 Kartaballi.
- 58 Washiba.
- 59 Kimaasamasa.
- 60 Curbacalli.
- 61 Bartaballi.
- 62 Acourib root.
- 63 Wara couri.
- 64 Ducalli.
- 65 Arawica.
- 66 Bango or ebony.
- 67 Hackia.
- 68 Kurahara.
- 69 Calabash.
- 70 Kuracurara.
- 71 Towraneroo.

- 72 Greenheart.
- 73 Hya-hya.
- 74 Cabbage tree.
- 75 Wallaba.
- 76 Yarri yarri.
- 77 Waremia.
- 78 Hooboballi.
- 79 Cannella, or wild spice wood.
- 80 Itikiribouraballi, old.
- 81 Bully tree.
- 82 Silberdani.
- 83 Brown silverballi, light.
- 84 Kofassa.

[It will be seen from this table that British Guiana produces many woods highly ornamental and useful for cabinet-making and upholstery.]

OUTRIDGE, J.

84, 84a Mora, transverse and vertical sections, from River Demerara.

[The tree (*Mora excelsa*) producing this wood frequently reaches a height of upwards of 100 feet. It grows abundantly on barren sand reefs. It is tough, close and cross grained, and is peculiarly adapted for ships' timbers and planks, for which purpose it is extensively used. The trunk of this tree, when of the height of from 40 to 50 feet, will square from 18 to 20 inches, but when grown to that size it is generally faulty. The specimens sent are from a tree supposed to be from 30 to 40 years old.]

85 Greenheart, transverse section.

STUTCHBURY, J. S.

85a Greenheart, vertical section, from River Demerara.

[The greenheart tree (*Nectandra rodias*) is very abundant, and its timbers, squaring from 18 to 24 inches, can be procured without a knot from 60 to 70 feet long. It is a fine-grained hard wood, well adapted for the planking of vessels, house frames, wharves, bridges, and other purposes, where great strength and durability are required. Mr. Manifold, engineer of the Demerara Railway, states that this is the best timber for resisting tensile and compressive strains, and is therefore well adapted for kelsons for ships and beams of all kinds.]

OUTRIDGE, J.

85b, 85c Specimens of black greenheart; transverse and vertical sections.

[The timber of this tree is used for ship-building, planks, &c., and is considered more durable than the common greenheart. The specimens sent are from a tree supposed to be about 50 years old.]

BUCHANAN, A.

86, 86a Purpleheart, transverse and vertical sections, from River Essequibo.

[The purpleheart (*Copaifera pubiflora* or *bracteata*?) yields a timber possessing great strength, durability, and elasticity, and is described by Lindley as "invaluable for resisting the shock of artillery discharges, on which account it is employed for mortar beds." It is used for windmill shafts, rollers, and machinery.]

[Like the greenheart, the purpleheart tree of Demerara belongs to the natural order *Fabaceae*. It is found abundantly in the forests of Guiana. The timber is extremely valuable for certain purposes, as for the carriages of artillery, from its extraordinary toughness and capacity to resist violent concussions. The tree is the *Copaifera pubiflora* and *bracteata*. In addition to its timber it is

valuable for the quantity of balsam which gushes from its bark on being wounded.—R. E.]

OUTRIDGE, J.

87, 87a Kakaralli, transverse and vertical sections, from River Demerara.

[This wood is very plentiful, and it has been proved that it is more durable than greenheart in salt water, as it possesses the quality of resisting the depredations of the sea-worm and barnacle. It may be had from 6 to 14 inches square. The specimens sent are from a tree supposed to be about twenty years old.]

88, 88a Wamara, or brown chony, transverse and vertical sections, from River Demerara.

[This wood is hard and cross-grained, consequently not apt to split; it would, therefore, answer various purposes in naval architecture. It may be had from 6 to 12 inches square, and from 40 to 60 feet long. The Indians make war clubs of it. The specimens sent are from a tree supposed to be about twenty years old.]

89, 89a Wooroballi, transverse and vertical sections, from River Demerara.

[This wood is very close and fine grained, is easily worked, takes a high polish, and is much used in the colony for furniture. It may be had from 15 to 20 inches square, 40 to 70 feet long. The specimens sent are from a tree supposed to be about twenty years old.]

BUCHANAN, A.

90, 90a Wallaba, transverse and vertical sections, from River Essequibo.

[This wood is produced from *Eperua falcata*, Aubl., a tree very abundant throughout the colony. It is hard, splits freely, and is very durable from being impregnated with a resinous oil. It is used for house frames, palings, shingles, staves, &c. It has been ascertained that a roof well shingled with this wood will last upwards of forty years. It may be had from 15 to 20 inches square, from 30 to 40 feet long.]

DROGIN, T. B.

90b Wallaba, tecuba, or hart, River Berbice.

[This wood is the heart of the upper portion of the trunks of Wallaba trees which have been felled in the forests, and from which the sap wood has decayed. These are much used as paling posts and for other outdoor purposes, being found to be so durable as to be almost imperishable. They are about to be used as sleepers on the Demerara Railway, for which purpose it is supposed they will prove to be peculiarly well adapted. The defect of Wallaba and of its tecuba is its inability to bear great lateral strain. It therefore should not be used for beams longer than 12 feet.]

Sir R. Schomburgk states in reference to this tree,—the Wallaba tree of Guiana,—that its wood is deep red, frequently variegated with whitish streaks, hard, heavy, shining, and impregnated with an oily resin which makes it very durable. Its botanical name is *Eperua falcata*. —R. E.]

OUTRIDGE, J.

91, 91a Bully tree, transverse and vertical sections, from River Demerara.

[The tree yielding this wood is supposed to be a species of *Mimosa*. It is found throughout the colony, but most abundantly in the county of Berbice. It is of great size, and squares from 20 to 30 inches, and may be obtained from 20 to 30 feet long. The weather has little effect upon it, and it is employed for house frames, posts, floors, &c.

The upper portion of the trunk and branches are manufactured into shingles, wheel-spokes, palings, &c.]

92, 92a Silverballi, yellow, transverse and vertical sections, from River Demerara.

[This wood is supposed to be derived from a species of *Nectandra*. It is light and floats, and contains a bitter principle, which protects it from the attacks of worms. Hence it is much used for the outside planking of colony craft. It is also used for booms and masts. It grows to a great size, but then is often hollow. It will, however, square sound from 10 to 14 inches, from 40 to 50 feet long.]

FAUSET, T.

93 Silverballi, portion of the planking of a drogher.

[This specimen formed part of the outside planking of a drogher employed in the conveyance of produce in this colony, and is known to have been exposed to the action of salt water during a period of 20 years.]

94 Silverballi, portion of the planking of a punt.

[This specimen formed part of the bottom of a punt known to have been used in the Demerara River for a period of 30 years and upwards.]

BUCHANAN, A.

95, 95a Camara, or tonquin bean, transverse and vertical sections, from River Essequibo.

[This wood is obtained from *Dipteryx odorata*, the tree which produces the well-known Tonquin bean. It is hard, tough, and durable in an eminent degree; and it is said that a portion of its timber, one inch square, and of a given length, bears 100 lbs. more weight than any other timber in Guiana of the same dimensions. It is therefore peculiarly adapted for any purpose where resistance to great pressure is the object, and for shafts, mill-wheels, or cogs. It will square from 18 to 20 inches, from 40 to 50 feet long. This tree is, however, not very plentiful in this colony.]

96, 96a Saouari, transverse and vertical sections, from River Essequibo.

[This wood is obtained from *Caryocar tomentosum*, Dec. or *Pekia tuberculosa*, Aubl., the tree which yields the delicious nut known as the Saouari, or Sewarri nut. It greatly resembles in its properties the mora, being excellent for ship-building, mill-timbers, and plank, and may be had from 16 to 20 inches square, from 20 to 40 feet long.]

OUTRIDGE, J.

97, 97a, 97b Yauri, or paddlewood, transverse and vertical sections, from River Demerara.

[This wood is obtained from *Aspidosperma excelsum*, Benth. The whole tree, from 5 to 6 feet in diameter, and to the first branches, about 50 feet in height, has the appearance of being fluted, or as if it consisted of a fasciculus of numerous slender trees. The fluted projections of the trunk are used by the Indians for the construction of their paddles. The wood is light, elastic, and very strong, and preferred to any other for cotton gin-rollers.]

98, 98a Hackia, lignum vite, transverse and vertical sections, from River Demerara.

[This wood, known in the colony as *Lignum citæ*, is said to be obtained from *Guaiacum officinale*, Lm.; but this seems doubtful, as the tree producing the wood attains a height of from 50 to 60 feet, and squares 16 to 18 inches, whilst the *Guaiacum officinale* is described as a comparatively small tree about 4 or 5 inches in diameter. It is used for mill-cogs and shafts. The specimens sent are from a tree supposed to be about 40 years old.]

DUGGIN, T. B.

99, 99a Lana, transverse and vertical sections, from River Berbice.

[This wood is obtained from *Genipa Americana*, Lin., the fruit of which yields the Indian pigment known as Lana dye. The tree is very high, and the trunk will frequently square from 14 to 18 inches. The wood is close grained, and is not liable to split.]

100, 100a Mammee apple, transverse and vertical sections, from River Berbice.

[This wood is obtained from the *Mammea Americana*, Lin., which produces the Mammee apple, or wild apricot of South America.]

[The Mammee apple tree is an ally of the celebrated Mangosteen tree. It is valued for the medicinal properties of its seeds. The flowers are distilled and produce a kind of alcoholic extract. The sap, when fermented, forms a sort of wine. It is sometimes called the wild apricot tree. —R. E.]

101, 101a Hyawa, transverse and vertical sections, from River Berbice.

[This wood is obtained from the *Iceia heptaphylla*, Aubl., or incense tree, yielding the gum Hyawa.]

102, 102a Corkwood, transverse and vertical sections, from River Berbice.

PONTIFEX, GEORGE.

102b Corkwood tree, abutment from near the root, from Troolie Island, River Essequibo.

[This wood is supposed to be obtained from *Pterocarpus Draco*, Lin., or *P. suberosus*, Pers., and is used chiefly as floats for fishing nets.]

BEE, J. F.

103, 103a Courida, transverse and vertical sections, from Plantation Woodlands, River Mahaica.

[This wood is obtained from *Aricennia nitida*, Jac., a tree of surprising rapidity of growth. These specimens are from a tree five years old. The wood is perishable when exposed to the atmosphere, but is very durable under ground, and is therefore used as foundations for buildings.]

OUTRIDGE, J.

104, 104a Itikiribouraballi, transverse and vertical sections.

[This wood is supposed to be obtained from *Machaerium Schomburgkii*, Benth. The trunk grows to the length of from 30 to 40 feet, and squares from 12 to 16 inches. It is used chiefly for cabinet work.]

105, 105a White cedar, or warracoori, transverse and vertical sections, from River Demerara.

BEE, J. F.

105b, 105c White cedar, or warracoori, transverse and vertical sections, from River Mahaica, East Sea Coast, Demerara.

[This wood is obtained from *Iceia altissima*, Aubl. It is light, easily worked, and very aromatic. Sir Robert Schomburgk states that one of his canoes, 42 feet long and 5½ feet wide, was made from a tree of this species. It is used for oars and paddles, and for boards for inside work of houses. During the American war it was used for staves of sugar hogsheds.]

OUTRIDGE, J.

106, 106a Suradanni, transverse and vertical sections, from River Demerara.

[It is much used for timbers, rails, and covering boards for colony craft, and for naves and felloes of wheels. It

is also made into canoes by the Indians. It will square from 14 to 18 inches, from 30 to 40 feet long.]

107, 107a Determa, transverse and vertical sections, from River Demerara.

[This wood is used for masts, booms, and planking for colony craft; and as insects do not infest it, it is well adapted for chests, wardrobes, &c. It will square from 14 to 16 inches, from 40 to 60 feet in length.]

108, 108a Crabwood, transverse and vertical sections, from River Demerara.

[This wood is obtained from *Xylocarpus carepa*, Spreng., or *Carapa guianensis*, Aubl., the seeds of which yield the crab oil. It is a light wood, and takes a high polish, and is used for masts and spars, flooring, partitions, and doors of houses. There are two varieties, the red and white. These specimens are the white. It squares from 14 to 16 inches, from 40 to 60 feet long.]

109, 109a Koquerettballi, transverse and vertical sections, from River Demerara.

[This wood forms excellent rafters and beams for cottages. It grows from 20 to 30 feet long, and from 4 to 6 inches in diameter.]

110, 110a Coutabally, transverse and vertical sections, from River Demerara.

[The tree which yields this timber grows upon sand-hills; the wood is very hard and durable if not exposed to the weather; it is plentiful, and principally used for house frames, and will square 12 inches, from 30 to 40 feet long.]

111, 111a Blackheart, transverse and vertical sections, from River Demerara.

[This is a good wood for house frames and for making furniture. It will square from 6 to 7 inches, from 20 to 30 feet long.]

112, 112a Cabacalli, transverse and vertical sections, from River Demerara.

[This wood is impregnated with a bitter principle, which defends it against worms; it lasts well under water, and is much used for planking colony craft. It must, however, be fastened with copper nails. It will square from 12 to 16 inches, or even more, from 40 to 45 feet long.]

113, 113a Yarri yarri, or lancewood, transverse and vertical sections, from River Demerara.

[This tree is stated by Schomburgk to be *Duguetia quitarensis*, Lindl., a slender tree found in tolerable abundance in the interior of the colony. The wood possesses much toughness and elasticity, and is used for gig shafts, and, when small, for whip handles and fishing rods. The Indians make their arrow points of it. It grows from 4 to 6 inches in diameter at the lower end, and from 15 to 20 feet long.]

[Sir R. Schomburgk states that the hard, tough, and elastic wood, so highly esteemed for the shafts of carriages and other coach-building purposes, is produced by this tree, yarri yarri. It belongs to the natural order *Anacaceae*, and its botanical title is *Duguetia quitarensis*. —R. E.]

114 Torchwood, from River Demerara.

[Supposed to be obtained from a species of *Amgris* or *Iceia*. When beaten, so as to separate the fibre, the branches are used as torches by the Indians.]

115, 115a Tooroo, transverse and vertical sections, from River Demerara.

[This tree is a species of palm. It grows to the height of from 50 to 70 feet. Its woody outside is used by the

cabinet-makers for inlaid work, walking-sticks, billiard cues, &c.]

BEE, J. F.

116 Coffee tree, portion of the trunk, from Canal No. 2, River Demerara.

116a Coffee tree, vertical section, from Canal No. 2, River Demerara.

117, 117a Tigerwood, transverse and vertical sections, from River Demerara.

[This is the heart of the wood Itikiribouraballi, and is a valuable wood for cabinet-making.]

STUTCHBURY, J. S.

117b, 117c Transverse and vertical sections of letter wood, from the River Corentyne.

[This is obtained from *Brosimum Aubletii*, Poep, or *Piratinera guianensis*, Aubl., and is one of the costliest woods which Guiana possesses. It is of a beautiful brown colour with black spots, which have been compared to hieroglyphics; the spotted part being only peculiar to the heart, which is seldom more than 12 to 15 inches in circumference. It is adapted for cabinet work of small size and for veneering only. From its extreme hardness it is difficult to work, and therefore little used.]

OUTRIDGE, J.

117d, 117e Transverse and vertical sections of the saka or bastard purple heart-wood, from River Demerara.

[Used for furniture.]

117f, 117g Transverse and vertical sections of the itaballi tree, from River Demerara.

[The tree which produces this wood is *Vochysia guianensis*, Aubl., and is used by the Indians for making corials.]

117h, 117i Transverse and vertical sections of the wadaduri or monkey-pot tree, from River Demerara.

[The tree which produces this timber is the *Lechytis grandiflora*, Aubl., and is plentiful. The wood is used for furniture, staves, &c. The specimens sent are from a tree supposed to be about 25 years old.]

117j, 117k Transverse and vertical sections of the hywaballi tree, from River Demerara.

[This tree is scarce. This wood, known as zebra wood, is used for furniture. The specimens sent are from a tree supposed to be about 30 years old.]

117l, 117m Transverse and vertical sections of the silbadani tree, from the River Demerara.

[This wood is used for furniture. The specimens sent are from a tree supposed to be about 20 years old.]

117n, 117o Transverse and vertical sections of the simiri, or locust tree, from River Demerara.

[The tree producing this wood is *Hymenoclea courbaril*, Lin., and is plentiful in various parts of the colony. It often attains a height of from 60 to 80 feet, with a trunk from 7 to 8 feet in diameter. The wood is hard and compact, and its durability recommends it for mill rollers and similar purposes. The Indians make "woodskins" out of the bark. The specimens sent are from a tree supposed to be above 100 years old.]

117p, 117q Transverse and vertical sections of the toweraneroo or bastard bully tree, from River Demerara.

[It is very plentiful, and is used for framing timber, spokes, &c. It will square 25 inches, from 40 to 50 feet long. The specimens sent are from a tree supposed to be about 50 years old.]

117r, 117s Transverse and vertical sections of the Mariballi tree, from River Demerara.

[This tree is plentiful, and is used chiefly for spars. It

will square from 13 to 14 inches, from 30 to 40 feet in length. The specimens sent are from a tree supposed to be about 20 years old.

With regard to the timber trees of this colony, Sir Robert Schomburgk, in his description of British Guiana, published in 1840, p. 116, observes:—"I cannot conclude my observations on the capabilities of British Guiana, without referring once more to the importance of its timber trade, and the source of wealth which might be derived if there were a sufficient number of woodcutters. At present, if we make a few exceptions, it is only carried on by individuals who enter upon it with but little capital and slender means; and yet there are instances where the industrious and sober have reaped riches. The fitness of the timbers for naval architecture is unparalleled, and in some instances is said to surpass the teak. The greenheart, the mora, and souari or sewarri, of all other woods, are most unquestionably the best adapted for ship-building. Within the last ten or twelve years a considerable quantity of brown greenheart has been sent to Liverpool and Greenock; and I have been told that builders and others interested in shipping are now of opinion, after about ten years' trial of the wood, that in strength and durability it is superior to any oak, and it actually commands a higher price. Had these woods been introduced and extensively employed in the Royal Dockyards fifteen or twenty years ago, it is the opinion of competent judges that we should not now hear much of dry-rot and Kyan's patent; and not to mention that rapid decay of vessels built of English and African oak, and the consequent frequent repairs, with what saving to Government would it not have been connected! If, therefore, the attention of the Navy Board could be drawn to the important fact that British Guiana can furnish the finest and most durable wood in the world, in sufficient quantities to supply all the ship-building establishments in Great Britain, a double benefit would arise from it, namely, the saving to Government and the increased demand for the natural productions of the colony. The first experiment might be made to establish a dockyard for the repair of such of Her Majesty's cruisers on the West India station as draw not more than 18 or 19 feet water. The outlay of such an establishment would be trifling if the importance of ultimate success be considered. The woods which are qualified for ornamental purposes vie in elegance, if polished, with any in the world. The want of labourers is the great cause that these treasures lie comparatively hidden, and have scarcely excited attention. The demand in the colony has been so great for native woods, that those who are at present employed in that trade are not able to meet it." It may be proper to add to this statement from Sir Robert Schomburgk's work, the fact, that in consequence of British Guiana being so extensively intersected by navigable rivers, ships of considerable burthen may load in the immediate vicinity of most of the wood-cutting establishments.]

MISCELLANEOUS ARTICLES.

STUTCHBURY, J. S.

118 Tonquin bean, from River Demerara.

118a Tonquin bean, in capsules, from River Demerara.

[This bean is the fruit of *Dipteris odorata*, Willd., and is principally used to impart fragrance to snuff.]

DUGGIN, T. B.

119 Job's tears (bud-like seeds), from River Berbice.

[This very peculiar seed of a grass is the fruit of *Cois*

lachryma, Lin., and is used in Guiana for ornaments, such as necklaces, &c.]

[This singular term, Job's tears, is applied to the stony fruits of a graminaceous plant, *Coix lachryma*. They are valued on account of some supposed medicinal qualities. R. E.]

ROSS, GEORGE.

120 Soap berries, from Plantation Ruminveld, River Demarara.

[This is the kernel of the fruit of *Sapindus saponaria*, Lin., and is used for ornaments, necklaces, bracelets, &c.]

MANGET, Mrs.

121 Barricari seeds, from Georgetown, Demerara.

[These are the seeds of *Erythrina corallodendron*, Lin., and are used for ornamental purposes.]

SHIER, DAVID.

122 Buck, or canna shoots, or seeds of the "Tous les mois," from Georgetown, Demerara.

This is the seed of an undetermined species of *Canna*, variously supposed to be *C. coccinea*, *C. lutea*, *C. occidentalis*, and *C. Achiras*, and is used by the Indians for shot. From the rhizome of this plant is obtained the Tous les mois starch of commerce. It grows wild in this colony, and could be cultivated to any extent.]

MORISON & KNOX.

123 Isinglass, from Gilbagre, coast of Demerara.

[This is the sound of the *Silurus* —? a fish very abundant in the estuaries of the rivers of this colony.]

BEE, J. F.

124 Honey, from Plantation Woodlands, River Ma-naica.

[This is the produce of a small wild bee, which is stingless, and easily domesticated. The honey is deposited in small separate pouches, and may be removed once every month by making a puncture in the bottom of the pouch, from which it readily flows, which opening, the insect afterwards speedily closes up.]

BARKLY, Mrs.

125 Ornamented hammock, made of silk grass, supposed to be the fibre of a species of *Bromelia*, or of *Agave vivipara*, Lin., ornamented with the feathers of the toucan, macaw, &c.

STUTCHBURY, J. S.

126 Ita, or eta palm hammock, made of the fibre of *Mauritia flexuosa*, Lin.

127 Ropes to the same, made from silk grass.

BARKLY, Mrs.

128 Hat, made of the bark of the ita palm.

129 Indian head dresses, ornamented with feathers, worn by the chiefs.

HOLMES, W. H.

130 Case of pagalas, or packalls, made of the outer rind of the ita palm, and much used in the colony as baskets.

131 Shaak-shaak, from River Demerara. A child's toy, and used by the Indians in their dances.

132 Fans, made of the ita palm.

SHIER, DAVID.

133 Matapi, or cassava squeezer, made of the ita palm.

[Used by the Indians for expressing the juice from grated cassava. Before being filled, it is compressed as far as possible so as to increase its diameter; it is then filled and suspended from a beam, and a lever is inserted into the lower loop, to the long end of which a weight is applied, by which the matapi becomes elongated. It will be observed that the change of form in the vessel will tend

to diminish its cubic contents, and when stretched to its utmost length, its capacity will be diminished by nearly one-third: hence its applicability for effecting expression.]

BEE, J. F.

134 Etami, or cassava-sifter, used by the Indians, made of the ita palm.

BARKLY, Mrs.

135 Model of an Indian house, and twenty-eight miniature models of furniture, implements, &c., as used by the natives.

ROSE, Miss.

136 Cotton hammock.

[This is made of the wild cotton from the interior of the colony, referred to in Sir R. Schomburgk's description of British Guiana as remarkable for its fine long staple, silky appearance, and excellent quality. Full-sized hammocks made of this material command a price from three to four times higher than those of English manufacture.]

RIES, BERNHARD.

137 Spun cotton, from River Pomeroon.

[This is also the wild cotton of the interior.]

STUTCHBURY, J. S.

138, 139 Fishing nets of silk grass, of Indian manufacture.

DENNIS, GEORGE.

140 Basket, used by the Indians when travelling, slung from their shoulders. Entire wardrobe of a female Indian of the Warrow tribe.

DUGGIN, T. B.

141 Indian war club, from River Berbice.

ARNOTT, ROBERT.

142, 143 Indian war clubs, from River Demerara.

144 Blowpipe and quiver, with poisoned arrows, used by the Indians.

[The inner tube of the blowpipe is a single internode of the *Arundinaria Schomburgkii*, Benth. These internodes are sometimes 16 feet in length. The arrow is inserted into the tube, having a dossil of cotton around its lower end, aim is taken, and the arrow projected by a sudden expiration. Accompanying the quiver, there is the maxilla of a fish which is used for partially cutting the poisoned end of the arrow, so that that portion may break off and remain in the wound. This cutting is effected by rapidly turning the arrow between the teeth of the maxilla.]

145, 145a Bows and arrows, bows made of washiba, used by the Indians.

DUGGIN, T. B.

146 Winna, used by the Indians for enclosing tobacco, in the form of sheroots, for smoking, and said to be made of the rind of the fruit of the Manicole palm, *Areca manicot*, Lodd., from River Berbice.

147, 147a Buck pot, used in preparing pepper pot.

[These pots are made by the Indians, of a peculiar description of clay found on the banks of the rivers in various parts of the colony.]

148 Indian fly-brush.

148a Walking-stick of letter-wood, carved by the Indians.

OUTRIDGE, J.

148b Adada, or wood-skin, from the River Demerara.

[This is the bark of the purple-heart tree, called by the Indians *Mariwayana*. Sir R. Schomburgk says:—"They take off the bark of this tree when fresh cut down, and with very little trouble convert it into a canoe, commonly called a 'wood-skin,' some of which are large enough to carry 20 to 25 persons with perfect safety on smooth

water." During the month of February of the present year, the contributor and two other persons, weighing together not less than 500 lbs., descended or "shot" the Rapids, about 100 miles above the estuary of the River Demerara, in this wood-skin, in perfect safety. The seats commonly made use of in wood-skins consist of two or more light cylindrical pieces of wood, the ends of which are notched and rest upon the gunwale. The wood-skin sent measures 18½ feet in length, and about 28 inches in width. Accompanying it are two paddles made of yaruri, or paddle-wood.]

149 Quack, or covered basket, of negro manufacture, made of a palm called moucourou.

150 Basket, such as is used in coffee picking, of similar manufacture.

151 Hand basket, of negro manufacture.

152 Two baskets, of negro manufacture, made of the cabbage palm, *Areca montana*, Lodd.

153 Calabashes, the shell or rind of the fruit of *Crescentia cujele*, Linn.

STEELE, MATTHEW.

154, 154a Door-locks, made of greenheart, and in use among the creoles of this colony.

155, 155a, 155b Door-locks, made of crabwood, and in use among the creoles of this colony.

BEE, J. F.

156 Walking-sticks, made from the outer part or rind of the tooroo palm, from the River Demerara.

156a A box containing eighty small specimens of the woods of the colony.

157, 157a Diagrams showing the course of temperature at Georgetown, Demerara, during the five years 1846 to 1850, and the mean range thereof, &c.

158 Round table, composed of many kinds of wood, the growth of the colony.

HOPKINSON, JONATHAN, Esq.

159 Japanned cup and plate, made from the fig-tree.

RIDGWAY, A. F., Esq.

160, 161 Stuffed birds:—Toucan; blue parrot, from the Essequibo; yellow-bellied trojan. Skins of monkey, panther, &c.

COLLING, JOHN, Esq.

162 Model of a Birch Indian's house and family.

RIDGWAY, A. F., Esq.

163 Cotton grown by W. Finlaison, Esq., Fullerswood Park, Blacknow, Jamaica.

164 Specimens of the snake-nut of the colony.

[This remarkable vegetable production was discovered in Demerara by Sir R. Schomburgk. The embryo of the nut bears a strong resemblance, from its being spirally twisted, to a snake curled up. The tree producing this singular nut is one of the soap-nuts, and has been called by its discoverer *Ophdocaryon paradoxum*.—R. E.]

164a A native bag of coloured beads.

A necklace worn by the natives, which is composed of teeth of the wild boar (peccary?)

Another, of dried seed-vessels of a remarkable shield form, and very hard.

Another, of black polygonal beads, apparently of the wood of the Dari tree.

A throat ornament composed of black feathers, probably of the black toucan.

An "eatou," or Indian lady's wardrobe, being a sort of basket worked in beads, the pattern of which is a running square border of precisely that character which is commonly called "Egyptian," and of constant occurrence in Greek sculptures and paintings.

Pair of native sandals, the thongs as well as the soles of which are made of the bark of the palm tree.

Various war clubs and other weapons of hard and close-grained woods grown in the colony.

Bottle containing an aquatic fig-like plant, met with on the waters of the Guiana rivers. It is of a highly noxious nature, and by some supposed to be the plant yielding the Warouli poison.

A native ear-ring, composed of a long tooth, with a natural groove or furrow on its interior face, inserted on a piece of reed of very light texture.

A comb for the hair, made of the outer wood of the Tooroo palm.

Dried skin, 18 feet long, of a *Boa constrictor*.

[This skin exhibits numerous perforations by a sword, with which the boa was despatched, immediately after crushing to death and swallowing a negro boy, who had accompanied an English gentleman on a fishing excursion near the junction of the Essequibo river with one of its tributaries.]

A small case or quiver of hollow cane, suspended by a cord, spun from the wild cotton.

[The case contains an arrow point, or head, being a small thin splint of wood, little more than half an inch in circumference, and five or six inches long, hardened in the fire. The extremity has been steeped in the warouli poison. This arrow head is attached to the shaft by a thong or filament so contrived, that on striking an object it detaches itself, remaining in the wound, and thus enabling the native hunter to recover his weapon.]

Quayen, a native Indian squaw's dress.

Snake-nut, supposed to be the seed of a water-plant, which, when ripe, sinks, but, from some cause not germinating, again rises to the surface. Same species as horse-chestnut. Grows on a vine near the rivers.

Wari, or warouli poison, made from a vine; the wood is chopped small, and boiled down to a paste.



FALKLAND ISLANDS.

THE only contributions from these islands are the private collection of one exhibitor. This, however, represents, more or less completely, the natural features of the islands, since it includes sketches illustrative of their geology, botany, and mineralogy.—R. E.

1 WHITTINGTON, G. T., *Woking, Surrey*—Proprietor.

Portfolio containing fourteen sketches of remarkable places, geological formations, plants, &c., of these islands.

Portfolio containing twenty-seven sheets: specimens of grasses, sheep's wool, &c., produce of these islands.

Specimens of coal, copper, sandstone, quartz, spar, pebbles, rock, peat, lichens, orchilla weed, &c., from the same.



THE countries represented under this head, and above enumerated, have sent interesting collections of native produce of different kinds. Of these, the collection from Van Diemen's Land is the most extensive, comprising objects sent by a considerable number of exhibitors. In each instance, however, the attempt had been made to send for exhibition such articles as represented best the peculiar products of the country exhibiting. Many of the objects are of great importance to the merchant seeking a new source for known materials.—R. E.

EASTERN ARCHIPELAGO.

SOUTH AREA, S. 32.

THE Eastern Archipelago, so recently opened to civilization and secure commercial enterprise, is represented by three exhibitors, whose contributions consist of native cloth, a series of Malay paintings, a model of a pirate boat. In addition, is a great variety of natural products, vegetable and mineral. Among the former, gutta percha and its varieties will form an interesting study. The guns and spears are likewise valuable.—R. E.

1 GRET, The Countess.

Cloth manufactured by the Seribas, in Borneo.
Cloth made by the Mellanoes, in Borneo; sent home by Governor Sir James Brooke.
Twenty-nine drawings of Borneo plants.

2 HAMMOND, W. P. & Co., Merchants, London.

Specimens of sugar; coffee; sago, pearl; sago, common; sago, flour; pepper, black; pepper, white; nutmegs; mace; cloves; gambier; cutch; gum gamboge; gum benjamin; gum lac; rice; tortoise-shell; turtle-shell; M. O. P. shells; elephants' teeth; elephants' grinder; gutta percha; gum caoutchouc, or India-rubber; gum damma, and isinglass. The latter manufactured in the Archipelago from the interior membranes of fish, and valued on account of its highly glutinous character.

A series of thirty-six paintings, by a Malay artist.

A model, made to scale, of a sailing-boat used by the natives in the China Seas and Eastern Archipelago for the purposes of smuggling and piracy.

Specimens of rattans, bamboos, &c., grown in and imported from the Eastern Archipelago.

3 WOOLLEY, W., Secretary to the Eastern Archipelago Company, 34 Cornhill.

Bark cloth, manufactured by the Dyaks of Borneo.
Specimens of hard wood from Borneo; and surface coal from Labuan.

NEW SOUTH WALES.

SOUTH AREA, S. 30.

ABOUT twenty exhibitors from this colony have sent articles for exhibition. The character of these productions accords with the peculiar and commercial importance of the colony itself, consisting as they do principally of raw materials and produce, wool being the most prominent article. Australia may be rightly considered the most extensive wool-producing country in the world. In 1833, the imports from that country into Britain amounted to about three and a-half million pounds; in six years they had risen to ten million pounds, and in thirteen years to upwards of twenty-four million pounds. The climate combines the qualities essential to a wool-growing district, being dry, with a warm summer and a cold winter. On the Camden estate the late Mr. Macarthur succeeded in rearing those Merino flocks, the germ of which he had, in 1806, introduced into Australia by means of sheep imported in a vessel named by him the "Argo." They have proved one of the chief sources of the prosperity of the Australian wool trade, now grown into national importance, and in the past year amounting to thirty-six million pounds, valued at two millions sterling. On the same estate, of which four coloured views are exhibited, an interesting experiment is now being made of introducing the cultivation of the vine. The vineyards are situated on the Nepean River, forty miles south-west of Sydney. The following account of these experiments, which, if having, as there appears every probability of, a successful issue, cannot fail to become of great commercial importance:—

"After many experiments, local experience was at length obtained. The best varieties of vines having been selected, were transferred to a proper site in 1830, after the soil had been deeply trenched for their reception. This vineyard comprises about twenty-two acres, and is situated on a natural terrace, originally of alluvial deposit, a formation which is of frequent occurrence on the banks of several of the larger streams in New

South Wales. The soil is a porous, brown, fine-grained siliceous loam, of great depth, containing much decomposed vegetable matter, proxide of iron, and probably a considerable quantity of potash. In sinking a well an opportunity was offered of ascertaining the condition of the soil to the depth of fifty feet. Little change was observable for the first twenty feet; but the presence of vegetable matter became gradually less apparent, and the iron more abundant: the soil, however, continued to be quite as porous as at the surface. In descending further the change was more rapid, becoming more ferruginous, with a considerable admixture of alumina, until, at the depth of forty feet, it appeared to be little but sand, clay, and iron, of a bright red colour, and in such combination as to be perfectly permeable to water, and consequently to the roots of the vines. At the depth of forty to fifty feet water is obtained freely by infiltration, apparently from the bed of the river Nepean, which flows at about that level, in a deep channel several hundred yards distance. During periods of heavy rain this stream swells so much as to overflow its banks in certain places, and then forms rapid currents between the chain of alluvial terraces, such as the one described, and the higher grounds behind, rising to within a few feet of the surface of the former, and forming them into a series of temporary islands, some of them of great extent.

"The soil of these terraces possesses in great perfection many of the requisites for vine cultivation in a hot climate, which is also extremely uncertain with respect to moisture. During the most rainy periods it is never too wet; nor after being duly trenched does it, during the longest droughts, even close to the surface, ever become thoroughly deprived of moisture.

"The great depth and porous character of the soil renders it permeable to the surface water, however abundant, and capable of transmitting it back again by capillary attraction to the surface as it becomes parched by the great heats of summer. In less than twenty years, roots of the vines were found to have penetrated fifteen to twenty feet—how much deeper is not known. The growth of the plants is luxuriant, more equal, one year taken with another, than on the hill soils—their crops abundant and certain, were it not for the liability of damage from hailstones, from frosts late in the spring, and rottenness in the fruit when a series of showery weather happens towards the end of summer; the last two accidents being of more frequent occurrence in low than elevated situations.

"About ten years subsequently to the formation of the last-mentioned vineyard, another was commenced in a totally different site and soil; it occupies part of the slope of a hill of moderate elevation, the surface of which has been formed into terraces, to prevent damage from washing during heavy rains. The soil is a calcareous loam, resting at about two to four feet upon shale, passing into soft calcareous clayey sandstone, the soil itself being full of fragments of decomposing rock and of indurated marl or calcareous earth. Although very expensive to form into vineyards in a suitable manner, this description of land promises to be productive and to yield wine of very good quality. A similar description of land exists in considerable quantities throughout the older portion of the colony."

No wines being permitted for exhibition, the specimens sent over are not found in this collection. Australia possesses every requisite in regard of her natural capabilities for producing wine and dried fruits, not inferior to Spain itself. But experience is as yet wanting. The increasing importance of the tallow and leather trades is indicated by articles of that class exhibited. An interesting apparatus for determining the power of propellers is exhibited among these objects.

—R. E.

1 ARMITAGE BROTHERS, *Huddersfield*—Importers and Manufacturers.

A bale of scoured Sydney skin-wool, grown in New South Wales, and washed by Armitage and Company of Sydney.

1A BIDWELL, J. G., Government Commissioner of Lands, *Zanana, Wide Bay, Australia*.

A log of wood from the interior of Wide Bay district, north-east coast of Australia, the *Briggato* of the squatters (Bricklow of Leichardt's Journey), a species of *Acacia*, probably undescribed.

2 DAY, T. & W., *Sydney*—Manufacturers.

Specimens of colonial timber. Pair of ash oars and pair of paddles, manufactured of colonial wood.

2A BRIBARS, JAMES, *Sydney*.

Two beef hams spiced and cured by the exhibitor.

[The articles sent by the two preceding exhibitors were forwarded through Mr. A. Bogue.]

3 BURCHETT, J. R., 15 *Edmonton Crescent, Edmonton*.

A desk and a chess-board of polished woods.

4 CALLAGHAN, —, Crown Prosecutor, Attorney-General.

Two volumes of statutes, printed from types made in Sydney, and the books bound in Sydney.

5 CLINCH, J., 31 *Abchurch Lane*—Importer.

A set of bagpipes, made by George Sherrer, Sydney.

6 DUNBAR, D., *Limehouse*.

Samples of wheat flour from Port Phillip, New South Wales. Agent, N. Tweeddale.

7 DANGAR, R. C., *Billiter Street*.

Preserved fresh beef and mutton, a substitute for salt meats, from Newcastle, near Sydney.

8 LEARMOUTH, THOMAS, 40 *Royal Crescent, Notting Hill*—Importer.

Merino wool from Port Phillip.

9 MOTLEY, THOMAS, *Leeds*—Proprietor.

Wool, from Sydney, New South Wales.

10 DEVITT & MOORE, 9 *Billiter Street*.

A coach wrench, made at Sydney.

11 DUDGEON & Co., 1 *New Bank Buildings*.

Ores and specimens of wood from Sydney. Cured hams. Various samples of cotton grown near Maitland.

12 LEARMOUTH, THOMAS, 40 *Royal Crescent, Notting Hill*.

Four samples of Australian sheep's wool from New South Wales.

13 MACARTHUR, Lieut.-Colonel E.

Case containing 132 specimens of Merino wool, derived from the late Mr. Macarthur's original flock. In 1807 the first importation into England of this wool was 245 lbs. In the year 1848, it was 23,000,000 lbs. from New South Wales alone (valued at more than 1,200,000*l.*); and from the whole of the Australian colonies 36,000,000 lbs.

Four views in New South Wales, one being Camden (46 miles S. W. of Sydney), the original seat of Australian sheep husbandry, and now becoming celebrated for its vineyards.

[Specimens of the wines produced at these vineyards have been sent over to England; one of these is a hogshead from the first vineyard, made from a grape imported

from France called "La Folle," mixed to the extent of about one-third with another sort from Madeira, called the "Verdelho," the former being very productive and the latter remarkable for its richness in the saccharine principle. In the process of manufacture the grapes were crushed by being passed through a machine of simple construction, which reduces them thoroughly without bruising the stalks, and which, with the application afterwards of moderate pressure to the "rape," separates the juice from it with ease and expedition.

The wine was fermented in large vats of hewn stone containing from 800 to 1,600 gallons, in which it remained until the tumultuous fermentation had subsided. It was then drawn off into large store casks, containing 400 gallons, and suffered to continue the gentle stage of fermentation until quite still. The casks were regularly filled up, at short intervals, as the fermenting liquid subsided. When the process was sufficiently complete it was clarified with isinglass.

Another is a quarter cask, from the "White Muscat of Lunelle." The grapes were suffered to acquire a very advanced stage of maturity, to the extent of shrivelling on the bunches. To this wine, during the tumultuous fermentation, was added at different times very pure brandy of home manufacture, previously filtered through charcoal to render it quite flavourless, in the proportion of two pints of pure alcohol to the hundred pints of wine.

These wines have a certain dryness and bitterness peculiar to the wines of New South Wales, to which the palate becomes accustomed: but with age this bitterness passes off. The specimens sent are said to be void of this taste.

The wines at Camden are rarely fit for use until three years old, and greatly improved by keeping. They are very wholesome, and are extensively used by persons who have acquired a taste for them.]

15. **MOSES, SON, & DAVIS, 14 & 15 Aldgate High Street.**

Cask of Australian mutton tallow, and another of beef tallow, from the boiling establishment of Messrs. Benjamin and Moses, Sydney.

16. **WATSON, YOUNG, & CO., 2 Abchurch Lane, City.**

Orchilla maroon roans; red roans. Enamelled hides, enamelled kangaroo skins, patent kangaroo skins, prepared by Thomas Hall and Co.

17. **BLAND, Dr., Sydney.**

Model of the exhibitor's invention for extinguishing fire arising from spontaneous combustion in ships laden with wool.

18. **SHEILDS, FRANCIS W., Civil Engineer.**

1. Model of lattice bridge for colonial railways or works, formed chiefly of unsawn timber, and of original detailed construction.

2. Model of plate rail for colonial railways, with original arrangement of details; formed of five-eighths inch iron plate, laid on iron bark hardwood.

3. Model of trestle frame for colonial railways, used instead of embankments where timber is plentiful.

N.B. The above were designed by the exhibitor for the Sydney Railway Company.

4. Specimens of hardwood, in common use in New South Wales, and suitable for the above purposes.

19. **THE AUSTRALIAN AGRICULTURAL COMPANY, 12 King's Arms Yard, Moorgate Street.**

Specimens of coals from the Company's mines at Newcastle, New South Wales.

20. **LEON, LOUIS, 6**

A block of spermaceti, Wales from the sperm whale

21. **MITCHELL, Lieut.-C General of N**

1. A close cylinder of w action of propellers, is mou grooves cut in a board, to which support the piston-box; and on which piston by a socket, and fixed by a

The model propeller is unscrewing the cap from ti leathern washer; so that v is water-tight. The cylind at the receiver, after the w justed.

The turning gear is to be at the connecting socket, propeller, which, acting or cylinder to move backward speed, thereby proving the water.

2. The Bomaring propell engine in Port Jackson. have been sent to Englan of at Messrs. D. Cooper a City.

3. Rope made from the cimens of the leaf and of th

This root (a bulb) grow some wild lands near Syd the Botanic Gardens; tho made were 6 feet long. T said the New Zealand flax

4. Cone of the *Bidwelli* the native name. The frui near Moreton Bay, in whi growing in circumference ' portonate height.

5. New map of New Sou Original three-sheet map printed at Sydney. The er was taught map-engraving piler of these maps.

6. School-book, written, Sydney.

7. Specimens of native or Canobolas Mountains, New

22. **RAYNER, A.**

Two specimens of doeski

23. **WEBSTER, Captain, Go**

Hats made from the leaf tured by the prisoners in D the industry and discipline tralian gaols.

24. **GIBBS, Col**

Nests'-foot oil.

MORRISON,

Stockings and mits knitt opossum fur, by the exhibit

[The articles sent by the forwarded through Mr. A.]

SOUTH AUSTRALIA.

SOUTH AREA, R. 21.

AUSTRALIA, regard being had to the vast size of the country, and the value which attaches to its products, is only inadequately represented in the Exhibition. The specimens presented are, however, of a very interesting and valuable description. The copper ores, which have been so productive of commercial prosperity to the individuals concerned in their extraction, are shown by an interesting selection from the Lyndoch Valley mines, near Adelaide, and the Burra Burra mines. The extraordinary results of the latter undertaking are among the occasional marvels of mining speculation. Specimens of the carbonate and oxide of copper and of native copper are exhibited. In addition, attention requires to be drawn to a recent attempt to introduce the cultivation of the silkworm into this colony, and specimens are exhibited. Some agricultural and geological specimens likewise deserve notice.—R. E.

1 SOUTH AUSTRALIAN COMPANY, 4 New Broad Street.

Specimens of copper ores from Kanmantoo mines:—
Black and yellow sulphurets. Green and blue carbonate. Red and grey oxide. Native copper. Peacock, Pyrites, &c.

2 THE BAROSSA RANGE MINING COMPANY, by Messrs. COODE, BROWNE, & Co., 10 King's Arms Yard, Moorgate Street.

Stones of copper ore, as raised from the lodes.
Sulphuret of copper, containing 40 per cent. of pure copper, raised in the Lyndoch Valley, about thirty miles from Adelaide, South Australia.

3 GRAHAM & HALLETT, South Australia—Proprietors. The following articles are from the mines at Burra Burra:—

- 1 Red oxide of copper.
- 2 Green carbonate of copper.
- 3 Green carbonate of copper.
- 4 Red oxide and carbonate combined.
- 5 Red oxide and blue carbonate.
- 6 Strata in which the minerals occur.
- 7 Native copper.
- 8 Malachite and red oxide of copper.
- 9 Fibrous malachite.
- 10 Cabinet specimens, arranged.
- 11 Views of Burra Burra mine and smelting-house, and the township.

[The Burra Burra mines present one of the most striking examples of successful mining speculation with which we are acquainted. From indications which were regarded as of a most favourable character, the mine was started on the 5th of September, 1845, with a capital of 12,320*l.*, subscribed by a few merchants and traders at Adelaide. The following returns of ore raised from the commencement of the undertaking to September, 1850, will exhibit the extraordinary success of this undertaking:—

	Tons.	Cwts.
September 30, 1846. . . .	6,359	10
" 1847. . . .	10,794	17
" 1848. . . .	12,791	11
" 1849. . . .	7,789	16
" 1850. . . .	18,692	9

Making a total in 5 years of . 56,428 3

of copper ore, varying in quality from ore containing 30 per cent. of copper to much that produces 70 per cent. of that metal. The money value of this is 738,108*l.*

This great mineral deposit exhibits some peculiarities.

Although the miners and the proprietors speak of working on lodes, these are of a very different character from the copper lodes of the primary rocks of this country. In a great basin, formed in an amphitheatre of hills, an immense deposit of clay—the result of the decomposition of the clay-slate—has taken place; this, under conditions which we are not enabled to determine, became also the reservoir for the reception of copper. In all probability it was first deposited in the pure metallic state—a fine example of the electrottype process of Nature. During this process, the so-called veins spread themselves through the soft clay in various directions, in precisely the same manner as we may, by carrying the terminal wires of a voltaic battery into a mass of clay saturated with sulphate of copper, form a curious arborescent mass. By the action of the oxygen contained in the water, this copper becomes oxidized by the slow process which gives rise to the very beautiful crystals of red oxide of copper, and from this state it passes into the blue and green carbonates, under the action of carbonic acid, the difference in the colour of the two arising from the quantity of water in combination.

The malachites, which are now very extensively employed for ornamental purposes, are carbonates of copper, and large quantities of the specimens selected from the Burra Burra mines are sold for this purpose.

Nearly all the copper ore raised at the South Australian mines, has been hitherto sent to England, and smelted at Swansea; but there has been recently a smelting establishment introduced, which promises to be of great advantage to the colony.

The number of people now employed at the Burra Burra mines is 1,003.—R. H.]

4 MOSES, H. E. & M., 87 Tower Hill.

Fine sample of Australian wheat, weighing 64 lbs. per bushel; the produce of Adelaide, South Australia. Preserved fresh meats, prepared at the Camperdown establishments, Sydney, New South Wales. They are upwards of three years old, have undergone a voyage of 16,000 miles, are in a perfectly fresh state, and will keep so for any number of years.

5 HALLETT, R. & SONS, Broad Street, Ratcliff, London—Importer.

Articles from South Australia:—

- 1, 2 Wheat.
- 3 Hard soap.
- 4 Olive oil.
- 5 Five cases, containing specimens of opal and other rocks allied to precious stones.
- 6 Two samples of flour, and one of barley.
- 7 A dried bouquet of small native plants.
- 8 Specimens of stream gold, and gold in its matrix.
- 9 A case of polished stones, the produce of the colony.

6 MURRAY, Mrs.

Specimen of silk raised by the exhibitor, at Adelaide, in 1850, the produce of 580 worms fed on white and black mulberry leaves.

7 GREY, Earl (forwarded by).

Specimens of silk produced in South Australia, and showing the capabilities of that country for the production of this article.

9 HEATH & BURROW, 6 New London Street, Mark Lane, and Old Corn Exchange—Importers. Specimens of South Australian grain.

10 JOSEPH, J. A., 7 Blomfield Crescent, Bayswater.

A block of copper ore, weighing about 800 pounds, and containing about 45 per cent. of copper, raised from

Baker's lode, at Tangkillo Reedy Creek, South Australia, on the special survey of the Australian Mining Company.

Various lodes of ores, minerals, and geological specimens from South Australia, to illustrate the surveyed portion of that colony.

Miscellaneous specimens of minerals.

[The South Australian mines have a peculiar interest from their geological and mineralogical character. The ores of copper are usually of the richest varieties, the peroxide carbonates, green and blue. The South Australian Mining Company possess a territory of 22,000 acres; their principal mining operations are the Tangkillo, where seven lodes are now being explored. Baker's lode has already produced nearly 4,000 tons of copper ore, giving from 12 to 30 per cent. of pure copper. Formerly all the ore was sent to this country to be smelted; but smelting operations are now carried on in South Australia, and the result is very satisfactory to the colony.—R. H.]

VAN DIEMEN'S LAND.

SOUTH ARKA, S 31.

THE general character of the productions of the Tasmanian colony resembles that of the others, and is principally remarkable for the number and interesting nature of the products contained in the first four classes of the Exhibition. The exceptions are, however, more numerous than in some other instances. Some interesting and attractive articles of furniture, formed out of richly-marked woods, are presented to notice, and may prove instrumental in directing the attention of decorative furniture makers to the capabilities of the materials for the construction of furniture in England. A few specimens of textile manufactures are also shown, such as a roll of tweed, made of colonial materials. A considerable number of specimens of fur, and of the preparation of leather, harness, &c., indicate that progress in this important manufacture has been made by the colonists. The possession of an abundant supply of tanning materials of the purest kind, added to the abundance and cheapness of live stock, cannot fail to render this an increasingly important direction for industrial activity.

What will, however, receive most attention, and what is the most interestingly exhibited by this colony, is a collection of specimens of woods applicable for every purpose of art or use. The musk-wood of this colony, as an instance, is mentioned as valuable for ornamental purposes, of a close and fine grain, and variously veined and dotted. The wood of the myrtle is represented as of a beautiful vein and watered, fitting it admirably for showy picture-frames. The blue gum-tree promises to become a most valuable substitute for oak in ship-building. It reaches a vast height in the forests of this colony; two sections are exhibited which were taken at a distance of 104 feet apart, and a very trifling difference in their diameter appears. The Huron pine is likewise a valuable timber, and specimens of it are exhibited as applied to domestic and ornamental purposes. In addition to these it is suggested as affording an excellent material for organ-pipes, which might be bored out of the solid timber, and some pipes are exhibited. The advantages claimed for them are, that they yield a softer and more mellow tone than pipes made of a looser grain. This wood is also extremely durable, and little influenced by atmospheric vicissitudes.

Vegetable products of various kinds are also exhibited. The agriculture of the colony is represented

by various specimens of wheat, barley, flour, &c. The gum resins of those wonderful bliaaceous trees of Tasmania, the grass-trees, is exhibited, and suggested as a material for the dyer and varnish-maker. Interest will also be much excited by the specimens of what is called the native bread of Tasmania. This is in reality a large underground truffle, known botanically as *Mylitta Australis*. One of the specimens weighed originally upwards of fourteen pounds. It is eagerly sought by the natives, and not less so by the marcupial animals, who devour it with great greediness. It is half-roasted before being used for human food.

The furs of those animals which communicate so peculiar a feature to the zoology of Australia generally, the *Marsupials*, have been supplied in a manufactured and unmanufactured state. The feathers and oil of the sooty petrel, with articles of industrial value, are exhibited. Honey and wax are likewise sent: and it is indicated that the feeding of the industrious insects producing them can nowhere be more successfully conducted than in this colony. To the naturalist a specimen of silicified wood, found about thirty-two miles from Hobart Town embedded in lava, will appear of much interest.—R. E.

DENISON, His Excellency Sir W. T.

1 Blue gum timber of Van Diemen's Land (*Eucalyptus globulus*). Squared log 20 ft. long, 12 ins. by 12 ins. Said to be equal to oak as a ship-building timber. The two sections exhibited were taken from one tree at a distance of 134 ft. apart.

2 Stringy bark of Van Diemen's Land (*Eucalyptus robusta*). Squared log 20 ft. long, 12 ins. by 12 ins.

[This tree forms for the most part a large tree, the timber is, however, coarser than the last, and is chiefly used for house building and fencing.]

3 Blackwood, or lightwood, of Tasmania (*Acacia melanorhylon*). Squared log, 20 ft. long, 12 ins. by 12 ins. A very hard close-grained dark and full-veined cabinet wood, used for furniture and fittings.

4 Sassafras of Tasmania, often sassafrax (*Atherosperma moschatum*). Squared log, 13 ft. long, 12 ins. by 12 ins.

[This tree yields a soft, even, and close-grained timber, adapted for turning, and, probably, for the carver. It is largely used for flooring-boards, the inside work of houses, and cabin fittings in ships.]

5 Myrtle of Tasmania (*Fagus Cunninghamii*). Squared log, 12 ft. long, 12 ins. by 12 ins. It is hard and close grained, with a lively red tint, streaked and mottled near the root; and takes a fine polish.

These timbers are abundant in the colony, and can mostly be obtained of any required size.

ADCOCK, Mrs. W., *Elizabeth Street, Hobart Town.*

6 Two canisters of preserved meat.

HAMILTON, —, *Elizabeth Street, Hobart Town*—Manufacturer.

7 Hall-chair of blackwood (*Acacia melanorhylon*), with a raised shield cut on the back, kangaroo and emu for supporters, surmounted by a rose, with thistle on one side and shamrock on the other, carved in relief and polished.

8 Small round table, of Huron pine (*Dacrydium Fraxilianum*) with chess-board in the centre, and the pedestal of the same. The chequers are alternately of plain Huron pine, and wood of the she-oak of Tasmania (*Casuarina quadrata*), with a border of blackwood, surrounded by a narrow string of myrtle, the whole being enclosed with a band of figured pine.

PIERSON, —, Cabinet-maker.

9 Pier table or chiffonnière, of polished blackwood. Exhibited to show the dark tints and veining of this wood, and the polish of which it is susceptible.

FRASER, A., Coachmaker, *Collins Street, Hobart Town*—Manufacturer.

10 A pair of carriage wheels. The naves of the wheels are of blackwood, the spokes and felloes of blue gum; for these purposes, the two kinds of timber have been found well adapted.

REEVES, J. G., *Elizabeth and Macquarie Streets, Hobart Town*.

11 Case of leather, viz. :—
Hides of black and brown harness leather. Kip. Kip waxed on the grain, and black-grained kip.
Kangaroo-skins, grained, brown, and waxed.
Calf-skins, waxed and brown.
Black bazils.
Pair racks, cordovan horse hide.
Sole leather.

[These skins and hides are of Tasmanian production, and have been tanned and dressed at the establishment of the exhibitor.]

CHAMPION, —, *Hobart Town*.

12 Table of muskwood, *Eurybia argophylla* of Tasmania. Round turnover table, with brasswork and springs of Tasmanian manufacture. Exhibited for the beauty of the wood.

DOUGLAS RIVER COAL COMPANY.

13 Coal, two bushels.

[This coal is exhibited as a sample of the strong bituminous coal occurring on the east coast of Van Diemen's Land, and traceable over a large area of country, in seams varying in thickness from a few inches to ten feet and upwards.]

BROWN, JOHN, Cabinetmaker, *Launceston*.

14 Sideboard of blackwood of Tasmania.

[The timber of the *Acacia melanoxylon* is considered to be more deeply veined and tinted on the northern than on the southern side of the colony. It is called blackwood in Launceston and lightwood in Hobart Town.]

15 Top of star loo table. Composed of alternate-pointed sections of figured Huron pine and blackwood, veneered on cedar, and meeting in the centre; with finished pedestal.

16 Lady's table of muskwood.

STRAHAN, R., *Bonnington*.

17 Box of salt: two sorts—coarse, for pickling; and table, or basket salt. A sample from which the magnesian salts are said to be thoroughly separated.

MURRAY, W., *Liverpool Street, Hobart Town*.

18 Box of starch: the box made of Huron pine, figured. There are now several starch manufactories in Hobart Town.

DIXON, JAMES, *Skelton Castle, Isis*.

19 Flax, dressed in 1850 by the exhibitor, who is endeavouring to establish the cultivation of flax in Tasmania.

20 Box of dried apples.

[Generally, more fruits are dried in the northern than the southern side of Van Diemen's Land; but the last two summers have been unfavourable, from the unusually low temperature.]

BUTTON, THOMAS, *Launceston*.

21 Samples of glue.

22 Concentrated solution of Mimosa bark, extracted by cold water.

[This solution is employed for tanning leather; it is considered in a great measure free from colouring matter, and from the principles which give a dark, uneven character to leather, rendering it brittle, and depreciating its value in the English market.]

23 Mimosa bark, ground. Bark of *Acacia molissima*, or black wattle, said to be the best for tanning.

DENISON, His Excellency Sir WILLIAM THOMAS, *Norfolk Island*.

24 Box of tobacco in leaf.

25 Box of arrow-root.

26 Box of maize.

27 Cayenne pepper.

28—35. Wheats: — Farmer's friend, white velvet, James's Essex, Golden drop, white Kent, mother of plenty, velvet, and white Lammas.

MARSHALL, G., *Noble Farm, Pittwater*.

36 Wheat, bag marked G.

37 Oats, bag marked G.

DENISON, His Excellency Sir W. T.

38 Wheat (Chidham).

MILLIGAN, JOSEPH, *Oyster Cove*.

39 Sassafras bark of Tasmania (*Atherosperma moschatum*). Used medicinally as a bitter and a stomachic.

MURRAY, W., *Liverpool Street, Hobart Town*.

40 Mould candles.

M'NAUGHTEN, A.

41 Cask of velvet wheat.

LIPSCOMBE, F.

42 Cask of white Lammas wheat.

M'NAUGHTEN, A.

43 Cask of white wheat.

WALKER, JOHN, *Barrack Street, Hobart Town*.

44 Cask of white wheat. Cask made of silver wattle, with hoops of young wattle.

BROWN & Co., *New Wharf*.

45 White wheat, in a cask of Huron pine, hooped with black wattle (*Acacia mollissima*).

46 White wheat, in a cask made of black wood, with hoops of black wattle.

TOOTH, E., *Bagdad*.

47 Cask of malt.

PATTERSON, —, *Liverpool Street, Hobart Town*.

48 Cask of small malt. Cask made of silver wattle, wattle hoops.

WALKER, J., *Barrack Street, Hobart Town*.

49 Pearl barley. Cask made of silver wattle, with wattle hoops.

CLAYTON, H., *Norfolk Plains*.

50 Flour. Cask made of silver wattle, with wattle hoops.

WALKER, J., *Barrack Street, Hobart Town*.

51 Fine flour. Cask made of silver wattle, with hoops of young black wattle.

M'NAUGHTEN, —.

52 Superfine flour of Van Diemen's Land.

MILLIGAN, A. M., *Launceston*.

53 Small cask of biscuit, manufactured of Tasmanian flour.

BROCK, —, *Macquarie Street, Hobart Town*.

54 Common seamen's biscuits.

55 Ship biscuits, fine.

DENISON, His Excellency Sir W. T.

56—65 Muskwood (*Eurybia argophylla*), smoothed and polished on one side to show the grain.

[The muskwood of Tasmania is valuable for the purposes of the cabinet-maker, being variously veined, dotted, and marked upon a brown-ground colour. It is close and fine in the grain, takes a high polish, and harmonises well with the gilding on picture-frames, into which it is often worked up. The musk-tree grows only in dense forests and damp situations; and though it does not attain the size of a forest tree in Van Diemen's Land, it yet yields slabs large enough for ordinary ornamental work. The finest fancy wood is of course obtained from parts near the root, and from knotty gnarled butts of trees.]

66 Slab of myrtle (*Fagus Cunninghamii*), of Van Diemen's Land.

[This myrtle often composes dense forests of many miles, and individual trees in such situations, attain a girth of from 30 to 40 feet, with a proportionate height. The wood is of a fresh pink colour when newly cut, and is often very beautifully veined and watered, which fits it for showy picture-frames, and similar cabinet-work.]

67—70 Cedar (*Athrotaxis selaginoides*), or pencil pine, of Tasmania, Marlborough, and Lake Country.

[The pencil pine found in the ravines and gorges of the mountain, and the high table-land of the colony, in groups, or singly; sometimes in the forests, and not unfrequently in bare, unsightly groves; of dead, dry, and bleached stems, with a few large limbs attached, at the height of from 3,000 to 4,000 feet above the level of the sea.]

71, 72 Sections, with bark.

73 Celery-topped pine (*Phyllocladus asplenifolia*) of Tasmania.

[This pine attains a height of 150 feet, and grows in all the cold and moist parts of Van Diemen's Land, in a handsome pyramidal form. The young trees are sometimes used as spars for rigging vessels, but they are too heavy; the timber is very white and close-grained, and useful for household purposes.]

74, 75, and 76. Section, with bark, 20 inches long, 12 inches in diameter. The same, $\frac{1}{4}$ foot, and 12 inches in diameter. Rosewood, or zebra wood, of Tasmania, said to be plentiful about Marlborough and Lake Country.

77 Muskwood log, from Tasman's Penisula.

SMITH, C. T.

78 Hops, Tasmanian.

MILLIGAN, J., *Mount Wellington, and Constitution Hill.*

79 Hones for edged tools.

DENISON, His Excellency Sir W. T.

80 A drip-stone, from Norfolk Island. Filters made of this rock, which appears to be a raised beach of calcareous grit, are in general use in the colony, and much approved.

MILLIGAN, J., *Flinders' Island, in Bass's Straits.*

81 Gum: gum resin of the grass tree (*Xanthorrhæa australis*).

[This gum resin, or balsam, is highly inflammable, yielding, on combustion, a clear white flame and rich fragrant odour, and is said to be used in churches in place of frankincense; it dyes calico a nankin colour; enters into the composition of some sealing-wax, and may become the basis of a varnish. Very abundant on many of the meagre soils of clay and sand in Flinder's Island and the neighbouring islands and continent.]

FOWLER, —, *Maria Island.*

82—85 Dogwood slabs (*Bedfordia*).

86, 87 Muskwood slabs (*Eurybia argophylla*).

88 He-oak.

89 Ironwood, or *Lignum vitæ* of Tasmania. (*Notelæa ligustrina*.)

ROBINSON, —, *Westbury.*

90 A gun-stock of blackwood. Roughly cut into form, and polished on one side to show the grain of the wood.

WHITESIDES, —, *Hobart Town.*

91 Blackwood of Tasmania. A thin piece, polished on one side.

92 Myrtlewood.

93 Muskwood.

QUINN, —, *Argyll Street, Hobart Town.*

94 Blue gum of Van Diemen's Land (*Eucalyptus globulus*). A piece taken near the root, squared and polished on two sides, to show the grain.

QUINN, —, *Norfolk Island.*

95 Maple. Small piece of veneer, polished.

M'NAUGHTEN, —, *Hobart Town.*

96—102 Muskwood of Van Diemen's Land (*Eurybia argophylla*).

HADDEN, Capt. R. E.

103, 104 Muskwood of Van Diemen's Land.

EUSTON & MILLIGAN, *Macquarie Harbour.*

105, 106 Ironwood, or *Lignum vitæ* of Tasmania. Cross section of the trunk of the tree.

[This tree rarely attains a diameter of more than 12 or 14 inches. The density and hardness of this wood is such as to have led to its application in making sheaves for ships' blocks.]

BROWNEIGG, —.

107, 108 Muskwood slabs.

BURGESS, Mrs., *Davey Street, Hobart Town.*

109 Worstod work, representing a branch from a blue gum tree in flower, with four birds of Tasmania perched on the twigs. The branch, leaves, and flowers of the blue gum (*Eucalyptus globulus*) are represented. The birds are a red-breast, a small honey-sucker, a pardalote, and the blue-headed wren. The frames of this and the next are of the timber of the myrtle-tree of Van Diemen's Land, made by Mr. Pearson, of Hobart Town.

110 Worstod work, representing a group of indigenous flowers of Tasmania. In the centre is the warratah (*Telepea truncata*); immediately over it is a head of the grass-tree of Mount Wellington in flower (*Richea distichophylla*); then in order come *Acacia verticillata*, *Billardiera longiflora*, *Acacia armata* (an exotic) *Richea* sp., *Acacia mollissima*, *Acacia verniciflua*, *Casuarina quadrivalvis*, *Pomaderris*, *Boronia variabilis*, *Tetratheca* sp., *Pultenea* sp., and *Solanum laciniatum*.

HOOD, R. V., *Liverpool Street, Hobart Town.*

111 Timber of silver wattle (*Acacia dealbata*), with one side polished.

112, 113 Muskwood slabs.

114, 115 Blackwood slabs, squared (*Acacia melanoxylon*).

116 Cross section of small tree of Huron pine, with one corner smoothed and polished.

117 Huron pine slab (*Dacrydium Franklinii*), squared, and polished on two sides.

118 Muskwood slab, (*Eurybia argophylla*), squared and polished, to show the grain and character of the wood for ornamental purposes.

119 Myrtle slab (*Fagus Cunninghamii*), from the root.

120 Myrtle slab, from the stem of the tree.

DENISON, His Excellency Sir W. T.

121 Rosewood, *Acacia* sp., of Van Diemen's Land. Found in the Lake Country near Marlborough.

122, 123 Rosewood of Van Diemen's Land.

124 Celery pine slab (*Phyllocladus asplenifolia*), squared.

125 Rosewood.

HOOD, R. V.

126 Huron pine picture frame, with gilt moulding; the gold leaf made by Mr. Hood.

127 Muskwood picture frame.

MARRIOTT, The Venerable Archdeacon.

128 Muskwood picture frame.

HOOD, R. V. *Hobart Town.*

129 Myrtlewood picture frame.

WISEMAN, —, *Hobart Town.*

130 Whip, for tandem or four horses. Thong of colonial leather, and the stick a young sassafras of Tasmania.

131 Two ladies' riding whips, of whalebone, tipped with silver, by Mr Jones.

132 Whip for stock-hunting. Thong of colonial leather, and stick of she-oak.

133 Stock-hunter's saddle, complete. Manufactured of colonial cow-hide, prepared in Hobart Town.

134 Stock-hunter's breastplate.

BUTTON, THOS., *Launceston*.

135 Dressed kangaroo skins.

DENISON, His Excellency Sir W. T.

136 Roll of Tweed. Colonial material, manufactured by the inmates of Cascades' establishment.

137 Hank of yarn.

SUPERINTENDENT OF QUEEN'S ORPHAN SCHOOLS.

138 Woollen gloves, knitted. Manufactured by the children in the Queen's Orphan Schools.

139 Woollen socks, knitted.

140 The same, unbleached.

141 Woollen stockings, knitted.

142 Shawls, knitted.

BARNARD, J.

143 Swanedown, two skins.

CLEBURNE, R., *Murray Street, Hobart Town*.

144 Samples of soap.

LUMSDEN, —, *Brabane Street, Hobart Town*.

145 Loo-table top, of Huron pine.

146 Pedestal for the table.

WATCHORN, W., *Liverpool Street, Hobart Town*.

147 Cask of tallow. The exhibitor claims to have been the first to export tallow to England from the colony.

DENISON, His Excellency Sir W. T.

149 Loo-table top, dogwood (*Bedfordia* sp.).

[The dog-wood, or *Bedfordia* tree, is one of the most beautiful fancy woods of Van Diemen's Land. It attains to a larger size on Maria Island than elsewhere. In the vicinity of Hobart Town it is a mere shrub.]

150 Pedestal for the same.

151 Top of a sofa-table, inlaid with chess-board in the middle.

ROTT, W.

152 Portmanteau. Made of colonial leather.

GRNN, W., *Launceston*.

153 Feathers of mutton-birds, or sooty petrel (*Puffinus brevicaudus*).

[These feathers are much used for pillows, bolsters, and mattresses, and, when properly prepared, answer the purpose well. Owing to the numbers of this bird which resort to the islands in Bass's Straits, and the profusion of feathers with which it is clothed, this article can be obtained in abundance.]

ROTT, W., *Elizabeth Street, Hobart Town*.

154 A small rope line.

155 Small lines, three sizes.

156 Best small rope, three sizes.

157 Cable-laid lines, three sizes.

158 Common lines, two sizes.

MARSHALL, —, *Hobart Town*.

159 Riding-whip, common. Made entirely of colonial materials.

160 Two whip-thongs—one for gig, and one for hunting-whip. Made of horse-hide, dressed in Hobart Town.

OAKDEN, PHILIP, *Launceston*.

161 Wool, two fleeces, Leicester improved.

[The produce of sheep imported from the best flocks in England in 1837, is exhibited to show the improvement in the softness and silky appearance of the fleece, which are attributed to the nature of the climate.]

HART, —, *Hobart Town*.

162 Glue.

163 Oil, from neats' feet.

164 Oil, from sheep's trotters.

HOOD, R. V.

165 Gold leaf. Manufactured from Californian gold, brought to Tasmania by colonial trading vessels.

166 Gold-beaters' skin.

M'KENZIE, Mrs., *Blue Hills, Bothwell*.

167 Knitted gloves, made from opossum fur.

SMIEGLITZ, Mrs., *Killymoon, Break-o'-day*.

168 Gloves, made from opossum fur.

TOOTH, E.

169 Gloves, made from opossum fur.

M'KENZIE, Mrs., *Bothwell*.

170 Lady's cape of opossum fur.

TOOTH, E.

171 Gloves, made from lambs' wool.

BUTTON, THOS., *Launceston*.

172 Parchment.

ROUT, W.

173 Brushes, one set of four.

LIFSCOMBE, F.

174 Flax, dressed.

SHARLAND, W.

175 Carriage-rug. Made of skins of the black opossum, lined with skins of the native cat.

DENISON, His Excellency Sir W. T.

176 Rugs of various furs. Made of skins of the brush-kangaroo (*Halmaturus Bennettii*), forest kangaroo (*Macropus major*), black opossum (*Phalangista fuliginosa*), native cat (*Dasyurus viverrinus*), tiger-cat (*D. maculatus*), well preserved, exhibited as specimens of great rarity and beauty.

SHARLAND, Mrs., *George Town*.

177 Book of pressed algae, collected by the exhibitor.

DAVIES, VERN. Archdeacon.

178 Rug of skins of black opossum (*Phalangista fuliginosa*).

179 Rug of tanned skins of brush-kangaroo.

MILLIGAN, J.

180 Carpenter's bench-screw.

181 Three pairs of shoe-lasts.

VALENTINE, DR., *Campbelltown*.

182 Three organ-pipes of Huron pine, bored in the solid piece, with stops, &c.

[Two of these are bored in solid pine, and are found to yield a softer and more mellow tone than those made of woods not so hard in the grain. It is considered that the tube, being free from joints and glue, and made of very durable wood, when properly seasoned, will be little influenced by atmospheric changes. The small pipe has a stopper, which being removed, an octave above will be produced. The stopped pipe is regarded as a novelty; it gives a very soft note, well adapted for the treble half of the stop-diapason of a chamber-organ. The third is exhibited to show how an open pipe of the usual construction may be tuned by means of a stopper, without injury to its size.]

WARD, C., *Collins Street, Hobart Town*.

183 Stockman's ankle-boots, of colonial material.

REGAN, —, *Liverpool Street, Hobart Town*.

184 Nine dressed kangaroo skins, tanned with wattle bark.

HARTER, —, *Launceston*.

185 Prepared groats.

WARD, C.

186 Blacking for shoes.

ROUT, W.

187 Tanned skin with the hair on of the *Thylacinus cynocephalus*. The hyæna, or tiger of the colonists, which has become very scarce.

[The Thylacine or "pouched hyæna" of the Tasmanian colonists is the largest and most formidable of the carnivorous species of that peculiar order of quadrupeds (*Marsupialia*), which are almost exclusively confined to Australia and Van Diemen's Land. The Thylacine is peculiar to Van Diemen's Land, and, as its ravages amongst the flocks of the settlers are as destructive as those of the wolf in other countries, it is hunted down with great perseverance, and will probably be the first of existing quadrupeds which will be extirpated.—R. O.]

DENISON, His Excellency Sir W. T.

188 Six tanned skins of the *Ornithorhynchus paradoxus*. The platypus of the colonists. The fine fur under the coat of long hairs upon its back is said to be equal to the fur of beaver for hat-making.

[The *Ornithorhynchus* is peculiar to Australia and Tasmania, and combines with the hair and fur of a mammalian quadruped, the webbed feet and the beak of the duck, whilst the male has spurs on the hind legs like a cock. In its internal anatomy the *Ornithorhynchus* offers many marks of resemblance to both birds and reptiles, and forms the nearest link in the mammalian series to the oviparous classes.—R. O.]

SMITH, M. C. T.

189 Sample of fine wool.

DUNN, —, *Davey Street*.

190 *Mytilus Australis*, a native bread obtained on the Snug Estate, North West Bay, D'Entrecasteaux Channel.

[The native bread of Tasmania, which grows under ground, like the truffle in England, and, like it, has a peculiar smell. It is edible, having formed, in a half-roasted state, a portion of the diet of the aborigines, and has been successfully tried in soup and in puddings by Europeans. This specimen is unusually large, having weighed 14½ lbs. in 1846, at present it weighs 10¼ lbs.]

LOWES, T. Y.

191 *Mytilus Australis*, obtained at Glenorchy 17 years ago.

M'NAUGHTEN, —.

192 Writing-desk, of muskwood, inlaid with pine, blackwood, she-oak, and myrtle.

193 Dressing-case, or work-box, of the same materials.

MILLIGAN, J., *Argyll Street, Hobart Town*.

194 Necklaces of shells, as worn by the aborigines of Tasmania.

[The shell composing these necklaces seems to be closely allied to the *Phasianella*. It is very abundant in the various bays and sinuosities of the island. It possesses a nacreous brilliant lustre, which is disclosed by the removal of the cuticle, and thus the aborigines effect by soaking in vinegar, and using friction. Various tints, black, blue, and green, are afterwards given by boiling with tea, charcoal, &c.]

WALKER, ABM., *Norfolk Plains*.

195 Plumbago (black lead).

[This specimen was found in a seam or vein about 5 inches thick, traversing schistose clay, overlying an old quartzose and crystalline limestone, in a shaft where lodes of lead and copper are expected to be realised.]

ROLWEGAN, —, *Collins Street, Hobart Town*.

196 Book, in one volume, printed and published in Van Diemen's Land, bound in colonial calf, gilt and lettered with gold leaf manufactured in Hobart Town from Californian gold.

MILLIGAN, J., *Argyll Street, Hobart Town*.

197 "Tasmanian Journal," three volumes, printed and published in Van Diemen's Land.

ANDERSON, —, *Liverpool Street, Hobart Town*.

198 Set of ladies' tortoiseshell combs.

BROWN, FIELDING, —, *Hobart Town*.

199 Candlestick, turned, of ironwood, from Norfolk Island (*Olea apetalata*). The tops are turned from the root of the Norfolk Island pine (*Araucaria excelsa*).

MILLIGAN, J., *Argyll Street, Hobart Town*.

200 Snuff-box, turned of ironwood (*Olea apetalata*).

201 Snuff-box, of muskwood of Tasmania (*Eurebia gophyllum*).

202 Snuff-box, of Huron pine.

203 Globular snuff-box, turned out of the tooth of the sperm whale.

204 Ladies' thread-holder, turned.

205 Ladies' puff-box, turned.

206 Goblet, turned.

MOSES, S. *Liverpool Street, Hobart Town*.

207 Jaw of a sperm whale, with forty-eight teeth, complete.

[The sperm whale *Physeter macrocephalus*. This species differs from the great whalebone whales, in having a row of large teeth in the lower jaw, and a few small ones concealed in the gum of the upper jaw; the spermaceti contained in a large cavity on the outside of the skull above the cranium.—R. O.]

HULL, HUGH.

208 Half section of the trunk of the Tolosa tree (*Pittosporum bicolor*). This is the wood of which the aborigines chiefly made their waddies or clubs.

M'NAUGHTEN, —.

209 Muskwood slab.

FREEMAN, REV. E., *Brown's River*.

210, 211 Veneer of the oak of Tasmania (*Casuarina quadrivalvis*).

212 Piece of a knot of myrtle-tree of Tasmania.

213 Veneer of he-oak of Tasmania (*Casuarina stricta*).

214 Two veneers, of native cherry-tree of Tasmania (*Exocarpus cupressiformis*).

215, 216 Veneers of Tasmania honeysuckle tree (*Banksia Australis*).

DENISON, His Excellency Sir W. T.

220, 221 Half sections of a limb of honeysuckle.

222, 223 Half sections of a small she-oak tree.

MILLIGAN, J.

221 Section of a small stem of *Richea pandanifolia*, obtained at Macquarie Harbour. Specimen, sliced, bevelled, and French-polished, to show the pith, medullary rays, and beautiful markings of the wood.

[This plant grows like a palm, and attains the height of thirty to forty feet and ten inches diameter; it is confined to the dense wet forests on the western side of the island.]

SMITH, PHILIP, *Ross Reserve*.

222 Small bale of wool.

MILLIGAN, J.

223 Specimen of pinkwood (*Carpodontos lucida*) obtained at Macquarie Harbour.

[This tree attains an elevation varying from 100 to 150 feet in height, with a good clear barrel, and grows chiefly on the western side of the island in dense myrtle forests. The timber, which is fine-grained and very hard, has been used for making sheaves for ships' blocks.]

PECK, GEORGE.

224, 225, 226 Cribbage boards, veneered on pine, laid, &c.

MILLIGAN, J.

227 Butter-print of Huron pine (*Microcharys tetragona*).

MOSES, CHAMPION, & Co.

228 Eight ivory teeth of the sperm whale.

DENISON, His Excellency Sir W. T.

229 Maple of Norfolk Island, a square specimen.

MILLIGAN, J.

230 Seven baskets, made by the aborigines of Tasmania.

231 Model of a water-pitcher, made by the aborigines of Van Diemen's Land.

[This water-pitcher is made of the broad-leaved kelp, and is large enough to hold a quart or two of water. The only other vessel possessed by the aborigines for carrying a supply of water was a sea-shell, a large cymba, occasionally cast upon the northern shore of Van Diemen's Land, which contained about a quart.]

STRETT, WILLIAM, *Bath Street*.

232 Marble, from Maria Island, partially dressed.

BOYD, J.

233 Marble, from Maria Island, cut and dressed as paper weights.

TIBBS, —, *Goulbourn Street, Hobart Town*.

234 Specimens of crockery-ware, made from the clay found in the domain.

KERMODE, R. Q., *Mona Vale*.

235 Small bale of wool—exhibited as a fine sample.

JENNINGS, J. D., *Liverpool Street*.

236 Churn, made of Huron pine (*Microcharys tetragona*).

MOSES, S.

237 Bundle of whalebone; an important article of export.

SMITH, Lieutenant, R.N.

238 Raspberry and currant jam.

239 Green gooseberry jam.

240 Red gooseberry jam. 241 Quince jam.

ROAT, W.

242 Bundle of curled horse-hair.

SYMONDS, E.

243 Corn riddle, coarse.

244 Barley riddle, coarse. 245 Corn sieve, fine.

246 Fire-screen, for chair-back; made of willow, grown, dressed, and dyed in Van Diemen's Land.

247 Bottle basket, flat. 248 Bundle of willow rods.

249 Fishing basket.

250 Three double-handled baskets.

251 Book basket. 252 Knife basket.

253 Child's basket, round.

MILLIGAN, J.

254 Gum of Acacia (*Mucranata*); a shrubby tree on Flinders' Island, Bass's Straits.

255 Guano, from Babel Island.

256 Specimen of grey granite, from Flinders' Island.

257 Granite, from the east coast of Van Diemen's Land.

258 Granite, from the Hampshire Hills.

259 Porphyritic granite, from Webb's Harbour.

260 Limestone, from Fingal and Break-o'-day.

261, 262 Limestone, with galena, from Norfolk Plains.

263 Brown-clay iron ore, found near Fingal.

264 Clay iron-stone. Found in beds, alternating with bituminous coal, near the Douglas River, on the east coast of Van Diemen's Land.

265 Reddle—red ochre or red chalk. It occurs in masses of uniform and determinate shape, imbedded in alluvium of loam and earth.

266 Ore of iron, from the Hampshire Hills. It is nearly pure iron; seems crystalline; and is highly magnetic,

with polarity. It occurs in masses, at the line of contact between granite and basalt.

267 Ore of iron.

[This ore is found in nodules with quartz, in granite soil, near the Housetop Mountain, north-west of Van Diemen's Land; formerly used by the aborigines as a paint, being first peroxidized by roasting, and then reduced to a fine powder by grinding between two stones.]

268 Ore of manganese, from the vicinity of the Frenchman's-cap Mountain.

DENISON, His Excellency Sir W. T., *Tasman's Peninsula*.

269 Two cross sections of the barrel of the blue gum tree.

270 Limestone, from Maria Island.

FLEGG, R. C.

271 Wellington boots, of kangaroo skin, dressed in Hobart Town.

DENISON, His Excellency Sir W. T.

272 Specimen of calcareous grit, from Norfolk Island.

MILLIGAN, J.

273 Cake of bees'-wax, of Tasmania.

SYMONDS, E.

274 Key basket.

275 Round basket, open. 276 Long basket.

277 Straw hat, from Norfolk Island.

278 Hoop for a sieve, made of Huron pine.

MILLIGAN, J.

279 Four models of canoes of the aborigines of Van Diemen's Land.

[These are exact models of the large catamarans, in which the natives used to cross to Brune Island: the material is bark of the *Melaleuca squarrosa*.]

COX, F.

280 Case of Tasmanian insects.

BONNEY, —.

281 Case of Tasmanian birds.

GUNN, W., & MILLIGAN, A. M., *Launceston*.

282 Oil of the mutton-bird, or sooty-petrel (*Puffinus brevicaudis*).

[This is an oil of a deep-red colour, and is obtained by pressure from the stomach of the young bird. It is said to possess virtue as a liniment in rheumatism, and it burns with a clear bright light. The sooty-petrel frequents certain low sandy islands in Bass's Straits, in vast numbers during the summer, burrowing to lay its solitary egg, and literally undermining the ground.]

BROWN & Co.

283 Oil of the southern black whale.

284 Oil of the sperm whale. 285 Oil of the black fish.

LOWES, T. Y.

286 Oil of the shark.

DENISON, His Excellency Sir W. T.

287 Blood juice, obtained from a tree in Norfolk Island, which makes an indelible marking-ink, and is said to be used as a dye for calicoes, &c.

MILLIGAN, J., & HULL, H.

288 Gum kino, from the blue gum-tree, the stringy bark, and other *Eucalypti*.

[This kino is said to be equal, as a medicinal agent, to the kino from the East Indies, and is yielded very profusely by the *Eucalypti*, after incision or injury.]

BONNEY, —.

289 Manna.

[This specimen is an exudation from the leaves and delicate succulent twigs of the white gum-trees (*Eucalyptus*

mannifera) of Van Diemen's Land, after their perforation by an insect in the summer. It soon exsiccates, and falls in the form of irregular tears; and during December, January, February, and March is usually very abundant. Its properties are similar to, but less powerful than those of the manna of the druggist.]

ABBOTT, JOHN.

290 Iron-sand, a fine emery-like substance, which occurs in thin layers on the sea-shore at Long Bay in D'Entrecasteaux Channel, being a deposit from water passing through iron-stone beds, percolating the soil, and depositing the metallic matter where it comes in contact with the salt water.

ROTT, W.

291 Honey of Tasmania. Two bottles, one of 1849, and one of 1850.

MILLIGAN, J.

292 Resin of Oyster Bay pine (*Callitris Australis*).

[This is a very white resin, found sometimes, but rarely, in tears of a bright amber tint, and scarce. The Oyster Bay pine is only found along a narrow strip of country near the sea, on the east coast of Van Diemen's Land, and islands adjacent.]

ROTT, W.

293 Bees' Wax, Tasmanian. Three cakes, unbleached.

[In no country, it is supposed, do bees thrive better than in Van Diemen's Land, or prove so productive with little attention; this is attributed to the mildness of the winter season, and the fact that many Tasmanian plants bloom throughout the winter months. The bee has now become naturalised in the forests, and many of the hollow trees are filled with the produce of their labour.]

BICHENO, J. E.

294 Alum, found near Bridgewater. It occurs as an efflorescence in caverns in the clayey rocks.

SMITH, Lieut., R.N.

295 Epsom salts (sulphate of magnesia); found in caverns on the side of the Dromedary Mountain, near the Derwent.

296 Gum of the wattle-tree (*Acacia mollissima* and *Dealbata*).

[Wattle gum exudes in streams during the summer season from fissures and accidental injuries to the bark, and soon hardens into tears and lumps of various sizes. It is equal to the gum-arabic of the shops, and used for the same purposes.]

LIPSCOMBE, F.

297 Ham, cured by Mr. Marshall.

HAINES, J., *Murray Street, Hobart Town.*

Pickles:—

298 Red cabbage. 299 Walnuts. 300 Cauliflower.

301 Onion. 302 Mixed. 303 Tomato sauce.

DENISON, His Excellency Sir W. T.

304 Walking-stick, made of the solid side of the bone of a whale, with round head, turned out of the tooth of the sperm whale.

SCREEN, T.

305 Walking-stick, made of the solid side of the bone of a whale, with head turned, and cut to resemble a man-rope knot.

MILLIGAN, J.

306 Iron ores, from Long Bay.

[These ores occur in a bed about 7 or 8 feet thick, above sandstone, and at the foot of green-stone hills.]

MARRIOTT, Ven. Arch.

307 Walking-stick of the oak of Tasmania (*Casuarina quadrivalvis*).

LIPSCOMB, F.

308 Small round table, of Huron pine, inlaid.

DE LITTLE, R.

309 Galena, from the Tama River.

310 Iron ore; three specimens, found near York River above limestone.

MILLIGAN, J.

311 Galena, from Macquarie Harbour. It occurs in vein of mountain limestone, in the channel of Franklin River.

DENISON, His Excellency Sir W. T.

312 Coffee, from Norfolk Island.

MILLIGAN, J.

313 Wood opal, from Salt-pan Plains.

[It occurs in fragments of various sizes, scattered over the surface of the soil, above greenstone and sandstone.]

REES, —

314 Wattle bark, chopped, as it is prepared for the tannery.

MILLIGAN, —

315 Rock crystal (sp. 25).

[This mineral is found in angular pieces in the pebbles of soil above granite, and in rolled pieces on the sea-coast at Cape Barrow and Flinders' Island in Bass's Straits.]

MILLIGAN, J.

316 Beryl (*Aquamarine*); 30 specimens, varying from soft to very hard, and from blue to light green, in crystals and fragments more or less rounded and roughened, but having a brilliant lustre on the fracture.

317 Topaz, straw coloured; 300 specimens from Flinders' Island, Bass's Straits, in crystals and fragments more or less worn, but preserving a high polish and great transparency; hard enough to cut glass.

318 Topaz, yellow; 40 specimens, from the same locality. The crystals exhibit more or less perfectly their natural faces and angles, and possess, with a brilliant lustre, very considerable depth of tint.

319 Topaz, pink-coloured; 30 specimens.

KEMP, GEORGE.

320 Cornelian from the margin of Derwent, opposite Hobart Town.

SHARLAND, W. S.

321 Thread lace, two kinds, made by a girl eleven years of age, at New Norfolk.

REEVES, —

322 Wool. Sample of skin-wool.

323 Sample of skin-wool, scoured.

MILLIGAN, J.

324 Jet, or lignite, from Macquarie Harbour. In the cliffs, imbedded with this, is found a fossil resin, of a deep amber colour and agreeable perfume.

325 Limestone, from the Gordon River, where the formation is traceable nearly 50 miles.

BICHENO, J. E.

326 Limestone from the Mersey River, obtained near the Western Marshes, at a place noted for extensive caverns between Hobart Town and Bridgewater.

327 Limestone from the foot of the Mount Wellington range.

AKERS, Lieut. R.E.

328 Section of Norfolk Island pine (*Araucaria celsa*).

SLY, J., *Liverpool Street, Hobart Town.*

329 Pair of dress boots; the legs, fronts, linings, and straps of kangaroo-skin manufactured; and the soles, insoles, &c., of bullock-hide tanned in Van Diemen's Land.

FENTON, Mrs.

330 Honey of 1850.

DOWLING, H.

331—333 The "Tasmania Calendar" for 1848, 1849, and for 1850.

DENISON, His Excellency Sir W. T.

334 Potash from Tasmanian timbers, 26 lbs.; the result of experiments by the late Captain Stanley, viz., Blackwood, 6½ lbs.; wattle, 6 lbs.; the oak, 9 lbs.; peppermint, 2½ lbs.; gum (blue), 2½ lbs.

335 Red ochre, resulting from the decomposition of jasperous ore of iron.

336 Yellow ochre.

337 Specimens of marle.

338 White oak timber (*Lagunea vel Hibiscus Patter-sonii*).

339 Specimens of the timber of pine (*Araucaria ex-celsa*).

340 Specimens of iron-wood timber (*Olea apetala*), said to be the most durable.

All from Norfolk Island.

MILLIGAN, J.

341 Specimen of timber of Oyster Bay pine (*Callitris Australis*).

[This timber is used for agricultural implements and for fittings of houses; it is only to be met with along the coast of the colony.]

342 Specimen of greenstone, from Fingal; central vertical section.

[This is exhibited as a sample of the prevailing overlying rock of Van Diemen's Land, of which all the roads are made, and some houses and bridges are built.]

BLACKBURN & THOMSON.

343 Model of the bridge across the river Derwent, at Bridgewater, Van Diemen's Land, on the line of road between Hobart Town and Launceston.

[The model is constructed of Huron pine, and is upon a scale of a quarter of an inch to a foot. Erected by the exhibitors from their own design. The model was executed by W. Armstrong, under the direction of W. P. Kay, Esq., Director of Public Works in Van Diemen's Land. The length of this bridge is 960 ft., the breadth of the roadway is 24 ft., and it is raised 9 ft. above the highest high-water level. The bridge is raised upon piles, the total number of which is 363; the piles measure from 65 to 90 feet each in length, and are driven through mud and soft clay, the former 5 to 15 ft. in depth, the latter not ascertained. Continuous with the southern end of the bridge there is a solid causeway, extending to 2,350 ft. in length, with a breadth of 70 ft. The whole length of bridge and causeway is 3,331 ft. The work was begun in 1833, by Colonel, now the Right Hon. Sir George Arthur, and completed in 1849, under the government of his Excellency Sir W. T. Denison, at an entire cost of upwards of 50,000*l*. The navigation of the river has been secured by the construction of a moveable platform, or rolling bridge, at the third bay from the northern shore, 35 ft. in the clear. The longitudinal beams, upon which rests the platform or roadway of the moveable or rolling portion of the bridge, are shod with iron, and travel upon large flanged wheels, fixed upon a pier prepared for the purpose, and the mode of moving this rolling part is by powerful crab-winchies, working on toothed rails fixed on the framing under the bridge, worked by men standing on the moving part and moving with it. The lateral platforms are also moved in and out by crab-winchies fixed on the framing below.]

THOMSON, JAMES.

344 Coloured sectional elevation of the bridge and causeway at Bridgewater, Van Diemen's Land.

COUNCIL OF THE ROYAL SOCIETY OF VAN DIEMEN'S LAND.

345 Books and bookbinding; papers and proceedings of the Royal Society of Van Diemen's Land, volume the 1st. Printed by Messrs. Best, and bound by Mr. Rolwagan, Collins Street, Hobart Town. The lithographs by Mr. Thomas Brown, Macquarie Street. Bound in colonial calf-skins, tanned and dressed by Mr. Reeves. Gilt and lettered with gold leaf, manufactured from Californian gold, by Mr. R. V. Hood, Collins Street, Hobart Town.

WATSON, JOHN, Hobart Town.

346 Plank of blue gum (*Eucalyptus globulus*); length, 146 ft., breadth, 20 in., depth, 6 in.

[The various species of *Eucalyptus* attain generally a great size both in girth and length in sheltered situations, where the forest is thick, where there is no grass, and where injury has never or very rarely been sustained from bush-fires. Blue gum has been measured upwards of 90 feet round near Tolosa, on the northern aspect of Mount Wellington range, and on the southern side, according to the Rev. T. J. Ewing, one of the species has been measured 102 ft. at 3 or 4 ft. from the ground. Another *Eucalyptus*, called stringy bark, exists near the Cam River, on the north coast, measuring 64 ft. of solid timber at 4 ft. from the ground; the tree, having somewhat the form of a four-sided column with its angles bevelled, is 200 ft. to the first limb, where it is estimated to be more than 4 ft. in diameter, giving the enormous cubic measurement in the trunk alone of more than 1,000 tons of timber.]

GRANT, JAMES, Esq., Tullochgorum, Fingal.

347 Three ram fleeces:—

(1) Fleece from a hogget ram, weighing, after being scoured, 3 lb. 10 oz.

(2) Similar fleece, weighing 3 lb. 11 oz.

(3) Fleece from an older ram, weighing 4 lb.

RICHARDSON BROTHERS & Co., 17 St. Helen's Place.

Specimens of two sorts of wool.

McLACHLAN, —.

348 Specimens of silicized wood from Van Diemen's Land.

[This magnificent tree was discovered on the estate of Richard Barker, Esq., of Macquarie Plains, Van Diemen's Land, 32 miles from the City of Hobart Town, in the district of New Norfolk; it was 12 ft. high, and imbedded in lava, and distinctly surrounded by two flows of scoria, which at some distant day had brought out the juices of the tree to its surface, and became by a combination of siliceous matter, completely vitrified, and surrounded the tree with a glossy surface, the interior of the tree producing opal wood. On a minute examination of the wood by Dr. Hooker, when here in the "Erebus," it has been discovered to be a species of tree not growing in the neighbourhood, and appears to be of the pine or coniferous species. It is conjectured it was originally thrown up by an eruption of a volcano to a considerable height, and came down with its heavy end first upon a bed of sand, and had there remained for ages. In describing the tree he says:—"The manner in which the outer layers of wood, when exposed by the removal of the bark, separate into the ultimate fibres of which it is composed, forming an amianthus-like mass on the ventricle of the stump in one place, and covering the ground with a white powder commonly called native pounce, is very curious." It is 10 ft. high, and when first discovered, 3 ft. 6 ins. diameter, and has been excavated at very considerable expense and labour, and was in a perfectly perpendicular position on the point of a ridge of rocks.]

INCE, W. H., Esq., *Chelsea*.—Proprietor.

349 A list of Australian birds, belonging to the late John Matthew Robert Ince, Esq., commander of H.M.S. "Pilot," and collected during the surveying service of H.M.S. "Fly."

1. *Ptilonorhynchus holosericeus*; male. 2. *Carpophaga magnifica*. 3. *Ptilonorhynchus holosericeus*; female. 4. *Nettapus pulchellus*; male. 5. *Nettapus pulchellus*; female. 6. *Pitta strepitans*. 7. *Nymphicus Novæ Hollandiæ*. 8. *Pezoporus formosus*. 9. *Alcyon Daemenensis*. 10. *Merops ornatus*. 11. *Chalcophaps chrysochloris*. 12. *Trichoglossus porphyrocephalus*. 13. *Apornis scapularis*. 14. *Meliphaga longirostris*. 15. *Malurus Lamberti*. 16. *Alcyon pulchra*. 17. *Apornis erithropterus*. 18. *Petroica multicolor*. 19. *Falco frontatus*. 20. *Glyciphila fasciata*. 21. *Chrysococcyx lucidus*. 22. *Ptiloris paradiseus*. 23. *Pachycephala melanura*. 24. *Myzomela erythrocephala*. 25. *Zosterops chloronotus*. 26. *Dicrurus bracteatus*. 27. *Platyercus Brownii*. 28. *Geopelia humeralis*. 29. *Euphonia pulchella*. 30. *Ptiloris paradiseus*; female. 31. *Halcyon Macleayi*. 32. *Trichoglossus Swainsonii*. 33. *Sericulus chrysocephalus*; female. 34. *Piezorhynchus nitidus*. 35. *Ptilinopus Swainsonii*. 36. *Malurus cyaneus*. 37. *Sericulus chrysocephalus*; male. 38. *Trichoglossus versicolor*. 39. *Melopittacus undulatus*. 40. *Estrela bella*. 41. *Nymphicus Novæ Hollandiæ*; male. 42. *Malurus Brownii*.

[These specimens illustrate the ornithology of Van Diemen's Land, as well as that of the Great Main of New Holland. The plumage of the *Chrysococcyx lucidus* (21), and the varieties of "*Alcyon*," are especially beautiful, and admirably preserved.]

M'PHERSON AND FRANCIS, *Hobart Town*. (Agent,
W. Francis, Corn Exchange, London.

350 Sample of wheat, the growth of Van Diemen's Land, weighing 65½ lbs. per imperial bushel.

NEW ZEALAND.

SOUTH AREA, Q. AND R. 32.

A VALUABLE and tolerably extensive collection of native and other products has been forwarded from this distant dependency of Great Britain. Among the raw materials are specimens illustrative of the geology of certain districts. Among these is some copper ore from a small island, distant a few miles from Auckland. To this ore the attention of the miner has already been directed, and a Company has been formed for its extraction. Other specimens from mines differently situated are also sent, and appear to indicate that extensive supplies may in a short time be obtained from this interesting country. Some blocks of lignite and Waikato coal represent some of the stores of mineral fuel possessed by the country. Sulphur and manganese have also been forwarded. The abundant store of iron contained in the iron-sand of Cooper's Bay, Auckland, has at length been made available for the manufacturer; and the first casting at Auckland Foundry in December 1850, has been sent for exhibition. The vegetable produce is also represented by some good specimens, such as those of *Phormium tenax*, or New Zealand flax, bark, dyes, Kauri gum, orchella, timbers, malt, and hops. The manufactures are few and simple, consisting only of coarse cloth, basket-work, leather, and some native curiosities. The following statistical facts relative to this country have been prepared by Captain Collinson:—

STATISTICS OF

1. POPULATION.

In Chief Towns—
Auckland .
Wellington .
New Plymouth .
Nelson .
Otago .
Remainder .

Total British
Total Natives

2. EXTENT.

Belonging

Arable land .
Pasture land .
Remainder: forest,

Total, 123,000 square

3. PRODUCTIONS.

Wheat, maize, and similar
and other live stock; flax,
iron, and coal—by British

4. EXPORTS AND IMPORTS.

Great Britain (main)
British Colonies (st
produce)
Foreign Countries

Exports of Wool, Oil
To Great Britain
To British Colonies
To Foreign Countries

5. SHIPPING.

To and from Great
Britain
Foreign
Small coasting vessels

6. REVENUE AND EXPENDITURE.

From the Colony
Aid from British Government

Officers of Government
Public Works, &c.

1. FLAX AND WOOL.

MURCHISON, J. H., 1
Square
Copper ore from Kauri
from Auckland, New Zealand

COLLINSON, Rev. J. H.
Geological specimens from
Specimen of iron-sand from
Small bag made from New
Zealand flax prepared by the natives
Mat of New Zealand flax

- 4 ROBERTSON, J.
Specimens of *Phormium tenax*, or New Zealand flax.
1 Coarsest flax. 2 Owce best cordage flax. 3 Dressed Owce flax. 4 Tihore. 5 Dressed Tihore. 6 Flax dressed by Europeans. 7 Flax in the leaf.
Specimens of rope and wool-lashing.
Coil 4-inch warp, tarred. Shark line. Hand lead-line. Coil 4-inch tarred shroud-rope. Coil 3-inch tarred rope. Coil 2½-inch rope, tarred. Coil rattlin, tarred, 1½-inch. Coil wool-lashing. Fishing line, Harbuka. Coils white rope.
[New Zealand flax is obtained from the leaves of the plant botanically termed *Phormium tenax*. It is indigenous, and flourishes in marshy places. There are several varieties; the coarse is not much esteemed in this country, but the finer kinds are of great beauty and value for textile purposes.—R. E.]
- 5 McVAY, J.
Specimens of leather and skins.
Kip leather. Crop leather. Half-dozen sheep skins. One good sheep skin (not tanned).
Specimens of barks: Towai, tanning bark. Tanekaha, tanning bark. Hinau, black dyeing bark.
- 6 SMITH, J. A.
Specimen of soap, manufactured in Auckland.
- 7 ST. JOHN'S COLLEGE, *New Zealand*.
1 Specimens of cloth and hat. Manufactured by a native lad, aged 17 years, from wool grown, cleansed, carded, spun, and woven, at St. John's College, and dyed with native woods.
2 Hat manufactured by Nicholas Cod, pensioner, Howick, New Zealand.
Specimens of basket work:—
1 Basket, manufactured of Mange Mange, which is esteemed by the natives for its durability. Their eel baskets, made of this, last for a very long period.
2, 3 Baskets made of supple-jack, obtainable in the New Zealand forests from the eighth of an inch to a foot in diameter. By J. Meagher, pensioner, Howick.
- 8 HARGREAVES, J.
Specimen of lignite, obtained from the banks of the Tamaki, in the vicinity of Auckland.
- 9 GREENWOOD, W.
Specimens of coal, showing the strata of the exhibitor's coal mine at Matakana, 15 miles north from Auckland.
- 10 CONNELL, W. (*as Secretary of the Auckland and Waikato Coal Company*).
Specimens of Waikato coal; distance from Auckland 35 miles, and 10 miles from Manukau Harbour.
- 11 TAYLOR, J.
Specimens of the copper series from the Kawau Company's mine, Kawau.
1 Killas. 2 Gossan. 3 Copper ore, from the upper part of the Lode. 4 Manganese, found near the Copper Lode. 5 General character of the copper ore. 6 Copper regulus, No. 2. 7 Copper regulus, best, No. 1.
[It should be explained that the *Killas* is the clay slate rock in which these minerals occur. *Gossan* is a peroxide of iron, derived in most cases from the decomposition of the double sulphuret of iron and copper, and ordinarily found upon the "backs" of lodes. In many cases the gossans have been found to contain considerable quantities of silver.—R. H.]
- 12 REEVE, J.
Specimens of copper ore from Messrs. Whitaker and Heale's mine, Kawau.
1 Yellow ore. 2 Blue ore.
[The yellow ore is copper pyrites, that is, a sulphuret

of iron combined with sulphuret of copper, and the term blue ore is sometimes applied to the true sulphuret of copper, called also grey ore, and to the blue carbonate of copper.—R. H.]

- 13 LEWIS, T.
Specimens of copper ore.
Specimens from Great Barrier Island Mine, 35 miles N.N.E. of Auckland.
- 14 SMITH, J. A.
Two specimens from Brodie's mine, Mongonui, 100 miles to the northward of Auckland.
Specimen of iron sand, obtained in large quantities in Cooper's Bay, Auckland.
Specimen of sulphur, from White Island, Bay of Plenty, on the east coast of the Northern Island, New Zealand.
- 15 MEURANT, E.
Specimen of pumice stone, from the banks of the river Waikato.
- 16 BROWN, W.
Specimen of Kauri gum, obtainable in any quantity in the northern part of New Zealand, ranging from 20 miles south of Auckland to the North Cape.
- 17 GREENWOOD, W.
Specimens of building stone:—
Scoria from the vicinity of Auckland, obtainable in any quantity. Stone from Matakana, 15 miles from Auckland: brought to Auckland in blocks of large size, and used in the Ordnance buildings.
- 18 BROWN, W.
Specimen of limestone, from Wangarei, 60 miles to the northward of Auckland.
- 19 SMITH, J. A.
Specimens of Roman cement stone, found in large quantities on the banks of the Tamaki.
Specimen of sharks' fins, which can be obtained in large quantities, and are suited for the China market for a native basket or kit.
Specimens of flax seed and orchilla weed:—
1 Flax seed (*Phormium tenax*) for oil.
2 Orchilla weed, collected in the vicinity of Auckland.
- 20 BALNEAVIS, Lieut. H. C., H.M. 58th Regt.
Specimen of a New Zealand war pah, on a scale of half an inch to six feet.
- 21 JOHNSON, J.
Specimens of New Zealand furniture woods:—
1 Kauri (*Dammara Australis*). 2 Rimu (*Dacrydium cupressinum*). 3 Hakehake. 4 Hakerautangi. 5 Matai. 6 Kakikatea (*Dacrydium excelsum*). 7 Rowa rewa (*Knightia excelsa*). 8 Pohutukawa. 9 Wairangi pirau (or New Zealand sandal wood). 10 Manuka (tea tree). 11 Totara (*Podocarpus totara*). 12 Hakerautangi. 13 Kohe. 14 Hinau. 15 Tanekaha (*Phyllocladus trichomanoides*).
- 22 THE WAIKATO COAL COMMITTEE, *Auckland*.
Specimen of coal, weighing 2 cwt.
- 23 PURCHAS, Rev. A.
Specimens of iron ore and limestone.
1 Iron ore, from Manukau.
2 Limestone, from Kawhia.
- 24 LOW & MOTION.
Specimen of native grown maize.
Specimen of Maori wheat and flour.

- 25 CARADES, J.
Specimens of New Zealand flax (*Phormium tenax*).
1 New Zealand flax, hackled. 2 Net twine. 3 Shop twine. 4 Fishing line. 5 Hand lead-line. 6 Marline.
- 26 KING, Miss, *New Plymouth*.
Reticule, made of New Zealand flax (*Phormium tenax*), dyed from New Zealand woods, the pattern and work copied from the mat of a New Zealander.
- 27 LIGAR, C.
Model of White Island, New Zealand. In native sulphur. On a scale of 10 inches to a mile.
Also a drawing of the place, by C. Heaphy.
- 28 TYRREL, J., Professor.
Specimens of native flax and wool.
- 29 SMITH, J. A.
Specimen of oil, from the hump-backed whale, caught at the Bay of Plenty. The sperin and black whales are also caught in New Zealand; but the bottles containing the specimens of their oil have been broken.
- 30 MCLEOD, R.
Specimens of manganese, from Brown and Campbell's land at Waihaka, 15 miles from Auckland.
- 31 Specimen of flour presented by the natives of Rangiarwhia, from wheat grown by Maories, and ground by their own mills (turned by water).
- 32 WHITELY, Rev. J.
Specimen of a native box of papa mahua, in which the natives keep their head dresses.
- 33 TAYLOR, T. E.
The grub of "Sphinx" destroyed by a vegetable fungus found under the rata tree.
[It is a remarkable fact that, in the instance mentioned, which is one of not uncommon occurrence, and in others which are on record, the powers of animal vitality have been overcome by those of vegetable organization. The fungus in question penetrates into the entire body of the insect, ramifying to the very extremity of its most delicate and slender organs. For a time the insect lives with its diseased part, but ultimately it dies a victim to the active development of the fungus.—R. E.]
- 34 WHYTEAW & SON.
Specimen of flax, cleaned by machinery.
- 35 BOURNE, W.
Specimen of iron-casting. The first casting at Auckland Foundry, 18th December, 1850, cast from iron-sand found in Cooper's Bay.
- 36 MCLEOD, R.
Specimen of salted mullet; can be obtained in great quantities, and well suited for India and China markets.
- 37 MOORE, F. G., 30 *Arundel Street, Strand*,
Proprietor.
Lithographic picture of a native village, or Pah, in New Zealand, situated in Cook's Straits. The figures in the foreground are all portraits, and the original large picture now in London was painted in the colony. This picture

is faithfully descriptive of a portion of the beautiful scenery of New Zealand, and of the habits and customs of the natives. It is a valuable record of the early history of the colony, by Professor Gilfillan.

Six water-colour drawings and six steel engravings of New Zealand subjects.

Four native mats or garments.

One greenstone Mari or chief's club. Three specimens of greenstone.

One carved box. One war-club. Native fishing-net and fishing-hooks. Two bottles of insects. Specimens of native grasses. Large map of New Zealand.

38 ARTICLES forwarded from *Wellington, New Zealand*, by the "Lord William Bentinck."

Table-top composed of 19 specimens of Taranaki woods, as per diagram accompanying same.

Sample of Mokuau coal.

Native basket containing four hanks of flax, two dyed, one (black) with the hinau.

Flax fishing-line and saddle-girth, native made.

Parcel, 10 baskets made of kie kie, and dyed with hinau.

Puriri, or iron wood. Rimu. Mairi. Miro. Kaiwira.

New Plymouth iron-sand in its natural state, unwashed.

Packet containing a substance collected from the earth in the town of New Plymouth, supposed to be alum in a very pure state.

Barley from T. Renwick, Nelson.

Malt made and hops grown by Hooper and Co.

Barley and hops grown by H. Martin.

Totara wood. Flax.

Coal from Massacre Bay, taken from an open pit on the beach about eight feet deep, exposed to the action of the sea; the seam is 5 feet thick, and has a dip of about 1 in 7.

Limestone, from same place as coal.

Native fish-hook, made with a shell only. Native mats.

Box of sundries, list enclosed, Rev. R. Taylor.

Footstool, embroidered with New Zealand flax, R. Cameron.

Specimens of dyed flax, R. Cameron.

Specimens of cleaned flax in various stages.

Leather tanned in Wellington with New Zealand materials exclusively.

Baskets made of kareac.

Baskets made of willow grown in the Kent and Cannock green moss, from the harbour of Port Nicholson, collected by Colonel McCleverty.

Flax, prepared by J. Duncan.

Native knives, formerly used for cannibal purposes.

Picture of Port Victoria, in frame of New Zealand wood, R. Hart.

Hat of native manufacture, and slings used by the natives for carrying burdens.

39 Malt and hops, made and grown by Hooper and Co.
Coals from Massacre Bay, taken from an open pit on the beach.

Sandstone, native fishfork and net.

Specimens of dyed flax, tanned leather.

40 LUCAS, R., & Co., 35 *South Audley Street*.

Specimens of New Zealand woods:—Octagon table, top veneered with 11 specimens of New Zealand woods. A sofa table, top veneered with three specimens of New Zealand woods. A small circular inlaid table on three twisted columns, carved claws, &c. A what-not, with twisted columns, veneered with three specimens of New Zealand woods. A what-not, with twisted columns veneered with one specimen of New Zealand wood. A papière, with hinged flap and sliding screen panel, fluted with green silk, &c.

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[Continued.]

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SECT. IV.—FINE ARTS.—CLASS 30.

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ALPHABETICAL AND CLASSIFIED INDEX.

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11. Hunt's Handbook TO THE OFFICIAL CATALOGUES. AN EXPLANATORY GUIDE TO THE NATURAL PRODUCTIONS AND MANUFACTURES OF THE GREAT EXHIBITION OF THE INDUSTRY OF ALL NATIONS, 1851. Edited by ROBERT HUNT, Keeper of Mining Records:

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INTRODUCTION.

"The success which has attended the Great Exhibition of the Works of Industry of all Nations may appear to render any remarks at this late period unnecessary. The industrial gathering has been inspected by the world: men of all nations and tongues have visited the Crystal Palace, and, returning to their several homes, they have reported with enthusiasm of the wonders they have seen. Usually, the imagination runs beyond the reality, and the mind, excited by highly-coloured representations, shadows out for itself images of splendour, which, far surpassing the actual object, cause feelings of disappointment when it is under these circumstances surveyed. The general impression produced by the Great Exhibition has been widely different; but every one has admitted that the realities displayed in, and within, the wondrous building in Hyde Park have far surpassed every

[Continued.]

preconception. The philosophy of this is, not that the individual articles are superior to others which we have seen, examined, and admired, but that in the whole there is a variety and vastness to which we are unused, and from which, as from a series of inductions, each man makes his own especial deductive reasonings.

"The Great Exhibition is, in a remarkable manner, a grand exemplification of the present state of human industry, and of the efforts of mind. We perceive in it the most complete illustration of the application of science to all the purposes of use and ornament; we discover how far man has advanced in his knowledge of the physical agencies which determine the constitution of matter, and of the productions of Nature by which he is surrounded.

"The general desire expressed for some concise description of the Exhibition—some guide, which should direct to the more interesting groups within the Building, and explain their peculiarities whether natural or artificial led to the design of the present Handbook, which is intended to afford that interpretation which appeared to be required.

"It is necessary, by a brief explanation, to correct a mistake which has been entertained, more particularly by exhibitors, as to the character of the work. It was never contemplated that, within the limits of two small volumes, an account of individual articles should be given. The objects exhibited have, as far as it was possible, been taken in groups, and the striking points distinguishing each alone selected for description.

"Doubtless some articles have escaped attention, which, from their merits and peculiarities, claimed notice. Every care has been taken to prevent this: the most scrutinizing examination has been made by competent persons, and information has been in every doubtful case sought from the exhibitors themselves. It is therefore hoped that the omissions will be few and comparatively unimportant.

"The descriptions of the several sections have been given by the following gentlemen, whose thorough acquaintance with the subjects they have undertaken is a sufficient guarantee of the correctness and value of the information contained in the Handbook.

"The productions of the Vegetable and Animal Kingdoms, and the direct manufactures from them, have been described by Professor Edward Forbes, F.R.S.; the Agricultural Implements by Professor Wilson, late Principal of the Agricultural College of Cirencester; and the Agricultural Produce by Mr. Joshua Trimmer, the author of several prize essays on this subject.

"The Machinery and Civil Engineering have been described by Professor Gordon, C.E.; and Military Engineering, Arms, and Maps, by Captain James, R.E. Mr. Holland, of Sheffield, the author of the Treatise on Iron and Steel in 'Lardner's Cabinet Cyclopædia,' has furnished the section devoted to Sheffield; and Mr. Atkin, of Birmingham, that which deals with the important manufactures of that locality.

"Messrs. Berlyn and Wm. Brough have given the extensive sections of the Foreign Departments, comprehending Precious Metals, Jewellery, Furniture, Printing, Stationery, Fine Arts, and Miscellaneous, their best attention; and to Mr. William Brough we are indebted for the Printing, Type, and Printing Machinery, of the English department.

"For the Mineral Kingdom, Metallurgy, Mineral Manufacture, Precious Metals, Jewellery, Iron, and Hardware, Furniture, Philosophical Instruments, Horology, Music, Glass, Porcelain, Chemical and Pharmaceutical Preparations, Woven and Felted Fabrics, &c., on the English side, and each section not specified in the Foreign Departments, the Editor alone is responsible. To those exhibitors who have furnished information, much of which was of the utmost importance, many thanks are due. Originality has not been aimed at, but every available source of information sought for; and to several periodicals which have devoted themselves to the Great Exhibition the Handbook is under obligations: amongst others, the *Morning Chronicle*, and the *Illustrated London News*, must be particularly named.

"Every care has been taken to render this compilation a record worthy of preservation, as giving, within a limited space, a faithful description of certainly one of the most remarkable events which has ever taken place upon this island, or in the world—the gathering together, from the ends of the earth, of the products of human industry, the efforts of human thought."

From 'ATHENÆUM,' Sept. 6, 1851.

"Connected with the Official Catalogues, as supplement and complement to them, is Mr. Robert Hunt's *Handbook*, now completed. This little volume—small enough for the reticule

or the coat pocket—is not a dry detail of facts and figures, names and numbers. It goes briefly—but for popular purposes sufficiently—into the science, art, and history of the interesting materials which constitute the world's industrial gathering. If the thing named be a vegetable production, its natural history is stated, as well as the story of its discovery and of the purposes to which it is applied; if it be a machine, its invention and improvements are noted, its effects on manufactures suggested, and whatever else may be of interest to the inquirer is briefly referred to:—and so throughout. The amount of scientific knowledge here compressed into two small volumes is astonishing; and this knowledge is not of an encyclopædic character, such as might be easily compiled from books,—but fresh and recent on all subjects, more especially in the departments of science.

The most instructive guide to the Exhibition while it is open—we have no doubt that this Handbook will become hereafter one of the most popular mementoes and histories of the actual gathering of the nations."

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18. The Saxon Section of the Exhibition OFFICIAL CATALOGUE, and a *Priced List*, price 3d.

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Alphabetical Index, showing the Locality of Articles exhibited on the British Side of the Building, and the Positions of the Colonies and Foreign Countries—Plan of the Building—Table of Contents, showing the Class or Foreign Country, and the Exhibitors' Number on each page of the Official Catalogue—List of the Local Committees (and names of Secretaries) of the United Kingdom which returned Exhibitors, and Subscriptions to the General Fund, up to the period of the opening of the Exhibition. [Corrected to 23th July, 1851].—Description of the Building.

ALPHABETICAL AND CLASSIFIED INDEX.—PART I. Alphabetical List of Contributors and others whose names appear in the Catalogue.—PART II. Alphabetical and Classified List of Articles contained in the Catalogue.

DIRECTORY—LIST OF JURORS.

23. Supplemental Volume, containing the Official and Scientific Report of the Juries upon the whole Exhibition, prepared by authority of H.M.'s Commissioners.

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"THE TIMES" ACCOUNT OF THE "OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE."

Extracted from "The Times," September 13th, 1851.

ALTHOUGH, in compliance with the original design of its projectors, the Great Exhibition has itself only an ephemeral existence, it is satisfactory to think that the most ample and complete records will be preserved of its character and details. Few events have attracted such an amount of contemporary publicity. The pen and the pencil have both been incessantly at work in perpetuating its industrial triumphs, and when all the material vestiges of the display are removed from our eyes, it will still live in a form the most valuable and enduring. The reports of the juries in each class will obviously prove an important *repertoire* of facts and observations, and the information which has been collected in newspapers, in periodicals, and in other channels of instruction, may also be turned to excellent account; but it is to the *Illustrated Catalogue* that we must look as capable of being made the most complete and satisfactory work of reference hereafter on the great industrial pageant of 1851. That publication now approaches its completion, for three parts of it have already appeared, and the fourth will soon be ready. It is intended that it shall be issued in three volumes, the first two of which will be dedicated to the products of Great Britain and her colonies, while the last embraces the contributions of foreign countries. As far as our own exhibitors are concerned, the work is complete, and from the portions that have already been given to the public we are enabled to form a pretty fair estimate of its character and the style of execution. Of all literary labours, that of getting up books of reference is, perhaps, the most tedious and the most thankless. The bare name of a catalogue kills the interest of the most indefatigable bookworm, after the collection of objects to which it was intended as a guide has ceased to be accessible. The present, however, is an exceptional case, and we predict for the *Illustrated Catalogue of the Great Exhibition* a standard reputation, and a large share of public patronage when the grass has once more grown over the site of the Crystal Palace, and the great event of this year has become a thing of the past. From unavoidable causes, the contractors, Messrs. Spicer and Clowes, are only completing the last pages of their work as the spectacle to which it relates is about to close; but they need be little alarmed at such a consideration. It has an enduring interest in the mass of valuable information of almost every description which it contains. To put the industrial products of the world under a glass case was a wonderful feat to perform; but here we have a still more extraordinary example

of condensation, partly executed and in process of successful completion. The Great Exhibition is reduced within the compass of three not very unwieldy volumes, and to the intellect in all respects, and in most important respects to the eye, its features and significance are preserved. Every object in the collection will be found noted down and described with the amount of particularity due to it. The promptings of partiality and the infirmities of judgment are equally excluded from this unbiassed record. An extensive series of illustrations is made to embrace every object worthy of elucidation by the artists' power, and in order that the instructive character of the work may be fully sustained, annotations written by men of the highest qualifications are introduced to explain processes, point out the character and uses of objects, and develop in brief terms the *rationale* of the more remarkable or least understood branches of human industry; with these features of interest the popularity of the *Illustrated Catalogue* when completed seems secure. It will prove a complete literary type of the original to which it refers, opening up sources of amusement or instruction to every class of taste, and proving equally at home on the drawing-room table, handled by fashionable dilettanti in the study, pored over by the scholar or the man of science, at the merchant's desk as a book of constant reference—in the factory, the foundry, and the workshop, as a *repertoire* for designs, and as highly suggestive for future progress. A more pleasant work to dive into during an idle hour can hardly be imagined, for wherever it is taken up there is something new and striking and worthy of attention. The necessity for condensation renders prosing impossible, and the classification of subjects secures an agreeable variety of subjects without monotony on the one hand, or a miscellaneous effect upon the other. Illustrations have been sparingly resorted to in the first portion, which relates to raw materials, but, as a substitute for this, we have tables and statistics of great value, and a large mass of information entirely original in its character. In the second part, which is devoted to machinery, numerous diagrams and sketches are introduced explanatory of the different objects exhibited. The chief interest of the *Catalogue*, however, in this respect, lies in the third and fourth parts, the latter of which is still unfinished. The three volumes will contain, altogether, about 1,200 illustrations, and the greater number of them will be given in the last volume, which will be dedicated to the foreign half of the Exhibition. This is the proper course to pursue, for the foreign contri-

butions are those which it is most important to have sketched. We are informed that original information of much value and interest has been communicated to the compilers of the catalogue, from the different countries which have taken part in the Exhibition, and that this will form a prominent feature of the work when completed. At present, while the public mind is saturated with the subject, the introductory position of the book may not attract the notice to which it is entitled; but when we are able to look back upon the whole undertaking from a point in the future and proceed to take its exact measure as an historical event, we shall not fail to be duly impressed with the remarkable character of the information there contained. Within the limits of 107 pages are compressed Mr. Cole's account of the way in which the Exhibition was got up, Mr. Digby Wyatt's description of the Crystal Palace, Dr. Lyon Playfair's classification of the artificial world, the directory of the scheme, the list of jurors, and the preliminary notice of the catalogue by Mr. Robert Ellis, its editor. Mr. Cole's narrative is especially worthy of attention for the insight which it affords into the machinery by which vast projects like the Exhibition can be successfully carried out. Even in this country, where the principle of association is so thoroughly understood, that machinery must be pronounced to be a masterpiece of skilful combinations.

Let us recal for a moment its chief incidents. A small body of men, without any influence of rank or wealth, and forming the council of what had previously been regarded as a useless society, conceived, as early as 1845, the idea of an Industrial Exhibition, national in its character. After one fruitless attempt, they engaged in a series of preparatory measures calculated to render their scheme acceptable to the public and secure of its support. Four years of indefatigable labour elapsed, and they had gathered around their undertaking an amount of support which they conceived justified them in again bringing it forward. They had placed it under the direct patronage of the Crown, and had secured for it, as an appropriate head, the name and the personal exertions of the Prince Consort. A Royal Commission was appointed, in which men of all parties, irrespective of politics, were included. In the mean time, the views of the projectors had expanded, and they resolved to give their scheme a cosmopolitan character. The great seats of our manufactures were successfully canvassed for aid, and foreign Governments responded to the invitations given to them, and promised co-operation. Yet even this powerful combination did not exempt the undertaking from perils that more than once threatened to be fatal. The question of ways and

means was for some time a stumbling-block in the path, and the Commission long hesitated to assume the pecuniary responsibilities which, in some way or other, it was necessary to provide for in consequence of the determination of Messrs. Mundy's contract. At a most critical juncture Mr. Peto came forward, and, with a degree of public spirit and liberality which cannot fail to be appreciated, pledged his name for a startling amount. Then, when other difficulties had been overcome, the question of a building presented almost insuperable obstacles. At the last moment Mr. Paxton and Messrs. Fox and Henderson rushed to the rescue of the perplexed Commission, and, after a succession of dangers, the scheme of the Exhibition was in safety. Had Mr. Cole's narrative been more detailed, it might have been rendered still more attractive, but the author, no doubt, prudently preserved silence on points which it would perhaps have been indiscreet to touch upon, and the leading men in the Council of the Society of Arts, having gained their object, are seen quietly resigning to more exalted names the honour and the glory of an enterprise which they not only originated but rendered practicable by their exertions. Of Mr. Digby Wyatt's account of the building, and of Dr. Lyon Playfair's classification, it is unnecessary to speak, as the public is already well informed on these subjects, but to the directory of the Exhibition and to the list of jurors some amount of attention is fairly due. In these names are comprised an extent and variety of practical and scientific talent, the union of which on any occasion, and for any given purpose, is altogether unprecedented. As the eye glances over the seemingly uninviting array it is impossible not to be struck with the curious combinations of persons which they present. Leading tradesmen and manufacturers rub shoulders with the most eminent philosophers of the day, and Science, descending from her pedestal, mingles freely and unostentatiously with the followers of hard-handed Industry. Not only so, but all the nations of the civilized world send the most distinguished of their citizens in the peaceful arts to sit in judgment upon the comparative excellences of rival products, and to determine at polyglot conferences, the stage of industrial progress which mankind have attained. The directory of the Exhibition and the list of jurors, taken together, form one of the most remarkable organizations that the world has ever witnessed—an organization which, considering its objects, implies not only an act of homage to industry, but a guarantee to civilization. The pages of the *Illustrated Catalogue* which contain these names are as instructive and reassuring as any within its limits.

THE CATALOGUE'S ACCOUNT OF ITSELF.

[Extracted from "*Dickens's Household Words*," August 23rd, 1851.]

I AM a Catalogue of the Great Exhibition. You are the Public. I intend to have some private talk with you, and pour into your ear the story of my early life.

Of a class of celebrated men there is a common saying, that

"They learn in suffering what they teach in song."

I, as a celebrated Catalogue, had much to go through with ere I learnt that which I teach now in the Illustrated Edition, the Official Edition, the French Edition, the German Edition, and the Twopenny Edition. I call myself a celebrated Catalogue, and I consider myself a work of great importance. My father, the Exhibition, certainly begot in me an illustrious son, who shall hand down his name for the refreshment of posterity. My mother, the Committee, by whom I was brought forth, has, I think, been abundantly rewarded for her pains. There would have been a visible blank in the world's history if I had not been born.

On matters of business it is well known that my manner of speaking is extremely terse; I'm none of your diffuse Catalogues that quote poetry out of unpublished manuscripts or out of Scott, and have as many explanations to make as Ministers when Parliament is sitting, or as turtle-doves who have wounded one another's feelings, and desire to re-establish peace. I say a great deal, to be sure, but then there is a great deal in what I do say. This being my business habit, and which, as you know, fits me uncommonly tight, I feel it a relief now to throw off restraint, and wear something a little easier; something more flowing. In fact, I mean to flow out now into a tide of gossip; to pour into your ear, confidentially, a stream of information on the subject of my early life, and to unbend; if I may say so, to un-catalogue myself; to loosen myself from the accustomed bondage by which I am compelled to travel only on a certain path. Still it is possible that a confirmed business character, like mine, may slip into the old train. Fond of arithmetic by nature, Walkingame is Byron to me, and my Wordsworth is De Morgan. Should these facts peep out, and should my figures be Arabic, with less entertainment in them than some other Arabian things that might be mentioned, you must shrug your shoulders, and say, It's his way; for, after all, what is he but a Catalogue?

What but a Catalogue? No, don't say that, because it sounds a little like depreciation. Now, I cannot

afford to be depreciated, because, as it is, my greatness is not fairly understood. Mr. Dando's appetite for oysters was large; but what would you say about Mr. Dando when you reached home after dining with that Major Cartwright, whose own notion of a dinner you will find put down in one of Southey's commonplace books? Said he to the young poet, "I make only two cuts at a leg of mutton. The first takes all that is on one side; the second all that is on the other. After that, I put the bone across my knife to get the marrow."

The epic grandeur of Major Cartwright's dinner, with its two sublime cuts, would put out of your mind the lesser lyric of a Dando, though nineteen dozen of natives should give *éclat* to his performance. The clatter going on about that horrid Exhibition Building keeps me, I fancy, too much unobserved. If I were to draw another parallel (the term is mathematical, but I am not yet in a state of De-Morganisation)—were I to draw another parallel, I should allude to the great mountain, Chimborazo, which is said in its first aspect to disappoint all travellers. The enormous magnitude of all surrounding features dwarfs the chief feature to the mind; there are no Brighton Downs or Salisbury Plains at hand, as objects of comparison. Now, you have made a Chimborazo of the Exhibition, and it towers in Hyde Park, and you are astounded, and you do not look at the surrounding elevations. Call the peak Paxton, if you please; but I tell you that this peak is the centre of a mountain system which presents grand and bold heights to your view. Call me a mountain, and my peaks, if you will, you may call Ellis, Playfair, Yapp (my compilers), Clowes (my printer), and so forth. Never mind measuring comparative heights. Around Mont Blanc are many mountains; there are many large hills clustering round Snowden. One fool makes many; one wise man makes more; and one great fact creates around it generally other facts great in themselves, although less lofty than the centre around which they are collected. In this way I am great, and what I want to talk to you for now, is this: I want to have my greatness understood.

I shall begin by quoting from a high authority, namely, myself; and when I say myself, I mean the Illustrated Catalogue. There I provide you with a little information, which I will repeat in a condensed form; and then, with as much modesty as is consistent with a proper self-respect, I shall have pride and plea-

sure in communicating to you some additional particulars. In the first place, you are aware that I am not one of your ordinary Catalogues; a list of books, or specimens already arranged and ticketed, made in a quiet way by a gentleman who walks among the articles in dressing-gown and slippers; then deliberately printed and revised in presence of the original articles which it is designed to comprehend. No, nothing of the sort. I was a Catalogue before the Crystal Palace was an Exhibition. From the north and the south, from the east and the west, my fragments were brought together in ships and deposited by postmen at Hyde Park, in one parti-coloured heap. Tah-tsi here, Shah Tishoo there, Sharps over the water, John Smith at the Antipodes, Oaweehoitoo in the Sandwich Islands, Monsieur Tonson of Provence, Herr Grubetik of Heinefetterdorf, Ben Ismael, and Paskyvitchikoffsky, and fifteen thousand people more—deliberately I say, fifteen thousand people, of all climes, all tempers, and all manner of hands at literary composition, had to be written to, and from each had to be received his modicum of "copy." Before the articles described were sent, or when they were upon the road, each contributor was applied to for his description of the articles he meant to send. Overwhelming might have been the eloquence of Shah Tishoo, descanting on his carpet; stupifying might have been the account given by Meinherr Grubetik of his case of pipe-heads. If no precaution had been used, I should have been even a more wonderful thing than I now am; but there would have been a something fearful in my composition. I should have been a monster like that chronicled in Frankenstein. To obviate this inconvenience, printed forms were supplied to the contributors. These forms, which were to be to the Catalogue what the manuscript of an author is to his proposed work, were framed with care, and were accompanied with instructions for filling them up, which suggested those points on which interesting or important information might be supplied, together with the descriptive account. There were four varieties, each appropriated to one of the four great sections of Raw Materials, Machinery, Manufactures, and Fine Arts. The essential characters of these forms were similar in each section, but the instructions for filling them up differed necessarily with the peculiar differences suggested by each section. The subjoined form represents that used in sending in descriptions of machinery, and is a type of those used in the other sections:—

"List of Articles of MACHINERY to be Exhibited by

_____ Exhibitor's Surname.	_____ Christian Name.
_____ Country.	_____ Address, stating nearest Post Town.
_____ Capacity in which the Exhibitor appears, whether as <i>Producer, Importer, Manufacturer, Designer, Inventor, or Proprietor.</i>	

No. of Articles.	DESCRIPTIONS.

In order to facilitate their classification on being returned by exhibitors, the forms in the four different sections were printed in black, blue, red, and yellow, the latter applying to sculpture and fine art, the former to raw materials, and the intermediate ones respectively to machinery and manufactures. Every exhibitor was required to send in one of these forms, accompanied with a duplicate in every respect similar to it, and in so doing was supplied with a "Receipt for Catalogue Forms," which was a guarantee for the reception of his goods into the Building. A very large number of these forms were printed and supplied to local committees, and to all exhibitors who applied for them, together with instructions for filling them up. These I omit. They are well-articulated skeletons on which to construct a succinct and sufficient description; general forms like the "Rules for taking Cases" given to medical students in many of our hospitals.

Of the two copies sent in, one was held by the Executive Committee; the other placed in the hands of the compiler, Mr. Yapp. The directions above specified, of course, did give a certain uniformity and a reasonably manageable character to the separate flakes of the great storm of description. It is also to be understood that many of the exhibitors neglected altogether, or postponed to the last minute, their answers; many answered in their own rambling way, with a good deal of self-laudation; and many who endeavoured to comply with the desires of the Executive, made a sad mess of their descriptions, "unaccustomed as they were to public writing." These returned forms had then to be taken as they came, and referred to their respective classes. The classes were thirty in number, and the classifier was Dr. Lyon Playfair. The forms were then gone through in the compiler's office; all superfluous matter was as far as possible crossed out of them; knotty sentences were unravelled as far as time permitted, and bad grammar mended. The sending out of forms occupied several men for nearly a month, during which time they had folded, enclosed, and directed more than fifty thousand printed epistles. I am not quoting my Illustrated Edition now, but have begun to gossip, for I want to tell you a few odd things more in detail about my compilation. The most minute information, I know, is welcome, when it concerns any celebrated character. The office of my compiler was opened in the Building in Hyde Park, on the 21st of January, 1851, with a staff composed of the compiler-in-chief, and three *aides-de-plume*. After the lapse of a few weeks, this number was increased by one, and remained then fixed, until the middle of April, when it was further increased. Six individuals then worked on with occasional aid until the end of May; when five, or less, were found to be sufficient, and in the beginning of July all compilation duty ceased.

The returns of exhibitors from divers parts began to meet each other in the compiler's office towards the end of January. As they came, they were sorted into sections, and arranged alphabetically. Then they were re-examined to ascertain how many had neglected to bring duplicates: and duplicates were made in the office to supply all such deficiencies. For a third time, the

returns were then examined, in order to compare them with a list of the proposed exhibitors; and not a few supernumerary papers, sent on speculation, were in this way detected and cast out. Then followed the grammatical revision; and, finally, the packet in each class had its contents numbered, and the numbers registered, before it passed out of the compiler's office, and into the office of the printer.

The first parcel reached the printer's on the 31st of January, and on the 31st of March six thousand and ten returns (from exhibitors in Great Britain and Ireland) had been sent to be set up in type. After this time the printer was supplied at a more leisurely pace; and on the 22nd of April the number of forms set up had advanced to six thousand two hundred and forty-one. The Colonial and Foreign returns were proceeded with simultaneously. Returns from the colonies were sent to press between the 6th of March and 21st of April; foreign returns between February 3rd and April 23rd, on which day the last fragment of my original manuscript was laid at the printer's door. The briskest of the foreign states, if we must judge by its promptitude in sending a return, was Tunis. The second parcel of foreign returns came from Lubeck, and the third from Switzerland. All the matter about which I have been speaking was first printed for the Illustrated Edition of the public's humble servant, and kept set up in a fragmentary manner until that work was revised for publication. Proof impressions, taken from these fragments, were sent to the gentleman charged with the scientific revision of the work, Mr. Robert Ellis, who allotted the various portions to the scientific annotators. For a few remarks upon those annotators, I must refer once more to the information given by my Illustrated self.

Of course, among the returned forms there would not only be grammatical confusion to correct, but a large number of scientific blunders. Things would be falsely named, foreign scientific words would be inaccurately rendered, familiar objects of trade would be popularly expressed, and throughout the whole range of the Exhibition, a Catalogue supplied by thousands of people differently educated would have no precision, uniformity, or coherence. There was a German once, named Feuerstein (flint), who went to French Canada. The Frenchmen there could make nothing of his outlandish name, so they translated it, and called him Gun-flint. The English occupied, after a time, that part of Canada, and as Gun-flint remained among them, he was again translated into Peter Gun. So you would have had in your Catalogue here, Feuerstein; there, Peter Gun; and never could have known them both to represent one and the same name. To obtain uniformity, therefore, the plan was adopted which I now quote:—

“A number of scientific gentlemen gave their consent to undertake the revision and correction of proofs of the returned forms in their peculiar departments, with a view to remove from them those errors which might present themselves, and to supply what might appear requisite to give prominence to their really important features. In addition to this, it appeared advisable, as critical observations were necessarily inadmissible, to

relieve the tedium of mere description, and to assist in pointing out the leading features of interest in the objects described, or in direct relation with them, by appending, as the subjects of the proof suggested, such brief annotations as might appear best calculated to effect these objects.

“As a certain degree of harmony of procedure was considered absolutely necessary, in order to give a consistent character to such corrections and annotations, supplied as they would be from a variety of sources, a few suggestions of certain general principles were adopted, and, as far as possible, acted upon. It is not necessary to reproduce the whole of these suggestions in their original form; but since it is important that exhibitors should be informed of the principles which, to a great extent, guided and determined the corrections and annotations which are found in this work, they are here subjoined.” Attention was particularly directed to the suggestion, under the head “annotations,” by which critical notices were strictly excluded from the annotations appended to the descriptions.

In sending about slips, many of them consisting of three or four lines cut out of other proofs, of course there arose danger of inextricable confusion when the little slips, or snips, should all come back again, and have to be re-arranged.

A simple method of ascertaining not merely the place in the Catalogue, but its entire history, its destination, annotator, and return, was, however, contrived, and the history of every proof has thus been accurately recorded. The information thus obtained was so accurate and precise, that, on the temporary delay of very small proofs, their original destination was instantly discovered, together with the date of transmission, and the name of the annotator to whom they had been sent. Much punctuality characterised the return of the dismembered portions of this large volume. Had not such been the case, the original plan of scientific and technical revision could not have been persisted in.

But, while all this work was going on, I was being taught to speak in French and German, by gentlemen engaged especially for that purpose.

Furthermore, and finally, the slips of the large Catalogue, revised, annotated, and re-revised, were placed before the compiler, that he might condense each description into an average of about three lines, for the shilling, or “Official Catalogue.” The reduction of the whole of the proofs of the British Exhibitors only occupied the Compiler, almost without any intermission, from the 24th of March to the 24th of April—just a month. The Foreign and Colonial portion was commenced on the 10th and finished on the 28th of April, so that the rough proof of the Catalogue was only completed two days before the opening of the Exhibition; fifty-two persons having been employed in the compiling and the annotating of these two English Catalogues.

It was not until all, or nearly all, the fragments were in the printer's hands, that the final numbering and arrangement could take place; so that, at the last moment, all my inside was twisted up and down. Classification this was called. The classification began at the printer's just before the arrival of the last corrected

slips; and they came, as I told you, only two days before the Exhibition would be open, and the Catalogue would be demanded by the public. Woe be to the printer who should go to bed at such a crisis! The "Official Catalogue" was classified, made up, and printed, and bound in four days. The first perfect impression was only produced at ten o'clock at night upon the eve of the eventful opening. Ten thousand Catalogues, properly bound, were punctually delivered, at the Building, on the morning of the 1st of May. The two copies presented to Her Majesty and to the Prince, that morning, elegantly bound in morocco, lined with silk, and with their edges gilt, had been bound, lined, and gilded in six hours. Now, perhaps, you do begin to wonder that you had a Catalogue at all upon the 1st of May, and are no longer surprised that, in that first edition, there were included descriptions of articles which the describers had neglected afterwards to send, or that the articles which had arrived, of unexpected bulk, or otherwise exceptionally, could not be placed properly in the Building, according to the exact numerical order that had been established in the Catalogue. Most of the errors of my first edition are corrected in my second. Now I mean to tell you a few more things about myself, well calculated to excite your admiration.

My "Official" self makes three hundred and twenty pages, or twenty sheets of double foolscap folded into eight. Two hundred and fifty thousand copies of this have been printed; one hundred and five tons of paper having been consumed therein; and, upon this paper, the duty paid is one thousand four hundred and seventy pounds. The publications connected with the Catalogues, and the number of pages in each, are as follows:—

English, French, and German Catalogues.	960
Descriptive and Illustrated ditto	2,000
English and French Synopsis	192
Hunt's Handbooks	1,000
Penny and Twopenny English and French } Plans and Guides	48
Priced Lists	500
Advertisements	160
Jury Reports	750
Alphabetical and Classified Index to the Official Catalogues	230
Pages	5,840

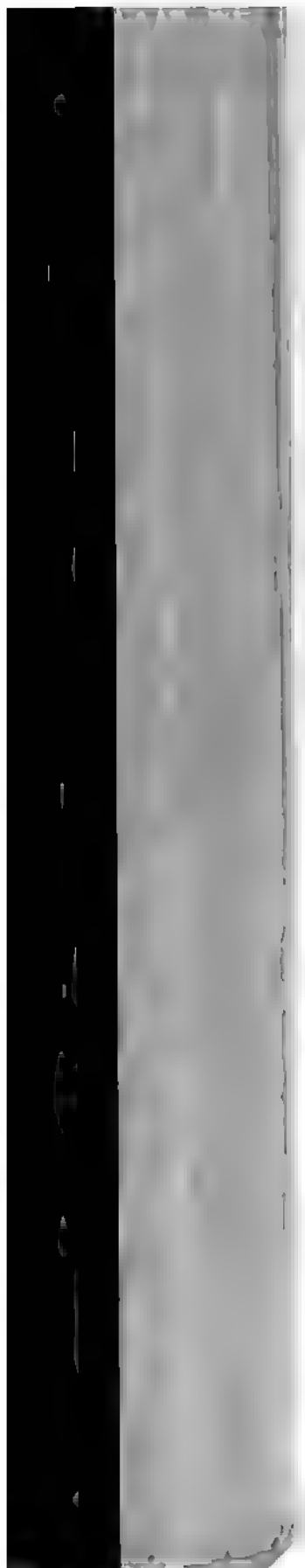
The new type of these publications is retained, set up for constant use and correction, and the weight of metal thus employed is sixty thousand pounds.

Up and down the courts of the Exhibition, I have been in the company of a good many people who have audibly voted me a bore. I trust that I shall not again have to complain of this. I contain the composition of some fifteen thousand authors; most of them authors for the first time, who have had their excrescences pruned, and their diction occasionally mended. Now, the first production of an author, if only three lines long, is usually esteemed by himself as a sort of Prince Rupert's drop, which is destroyed entirely if a person makes upon it but a single scratch. Some thousand authors, therefore, are dissatisfied with the attempts made to render me available for public use.

I say no more; having thus far indulged you with my confidence, I wrap myself in dignified reserve, conscious that I have told you quite enough to secure for myself your respect henceforward.

LONDON:

WILLIAM CLOWES AND SONS, STAMFORD STREET
PRINTERS OF THE OFFICIAL CATALOGUES.



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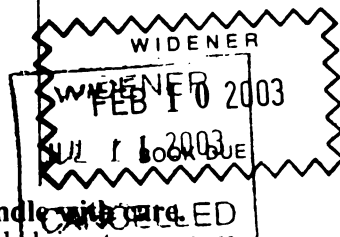
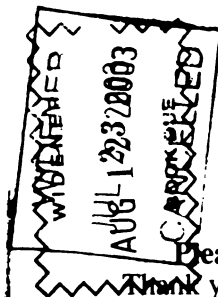
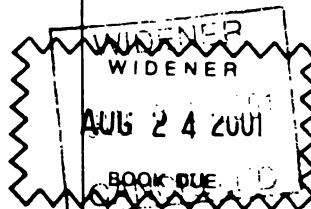


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